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Transport Bill Debate Postponed

IT is hard to see what the Opposition hopes from its success in the House of Commons last week. In securing postponement until after next Tuesday's Budget debate, of the amendments to the Transport Bill inserted in the Bill's passage through the Lords, the Opposition may have increased its supporters' morale. It has been suggested that Government anxiety for the Bill to be law by Easter was connected with some relation between the impending Budget and sale of nationalised road transport assets, though there is no apparent reason why the date of passage of the Bill should matter; no doubt the Government is anxious to keep pace with its legislative programme and to get to grips with its major transport preoccupation—the reorganisation of the railways. The Bill must go on the Statute Book in almost a matter of days. The Government has gone far to conciliate the Opposition, and although it now seems to have some doubts about its Bill, it could hardly concede much more without abandoning its principles and declared intentions in regard to transport. As the Minister of Transport, Mr. Alan Lennox-Boyd, said last week, the amendments to be debated are largely old friends. Apart from freedom for the railways in charging and from road haulage denationalisation, the main purport of the Bill is the reorganisation of the

railways, which is to be the subject of a White Paper and lengthy Parliamentary discussions before it comes about. Meanwhile among those responsible for running the railways there is bound to be unsettlement and uncertainty as to the future. One point on which experienced railwaymen agree is that the railways must not be the plaything of politicians, but that already is beginning to happen, with the danger of unfortunate consequences for the railways and the national economy.

Mr. H. M. Proud

MR. H. M. PROUD, whose death we record this week, was a very prominent figure in the development of power signalling in Great Britain. With some experience of electric traction, he entered signalling just at the time when the far-reaching changes which have marked its progress in the present century were beginning to make themselves felt. Track-circuiting had been proved to be practicable on electric railways and Mr. Proud was engaged in installing it, with the associated power signalling apparatus, on the London underground lines, where he gained considerable practical experience. Joining the signal industry he continued to be connected with such work in many parts of the world, most of which he visited, and he became widely respected as a most able member of his profession, never satisfied until he had mastered the last detail of any problem he was called upon to deal with. He made constant valuable contributions to discussions at the Institution of Railway Signal Engineers and was a member of the committee appointed by it in 1922 to report on problems connected with 3-aspect signalling and its future development. He was President for 1937, when he led a most successful visit to installations on the German Reichsbahn, and attended its Council meetings with regularity until a short while ago.

Indian Operating Statistics, 1951-52

THE statistical volume of the Indian Railways administration report for the year ended March 31, 1952, reveals the following operating results applying to all 5 ft. 6 in. lines. The average wagon load in all types of traffic, in terms of four-wheel wagons, was 16.4 tons, and the net ton-miles per wagon-day were 469; the wagon-miles per wagon-day were 40.9. The average weight in working order of a goods locomotive and tender was 133 tons; presumably that of a passenger engine and tender would be approximately the same. On this assumption, the average gross weight of a passenger train was 338 tons behind the tender. That of a goods train was 922 tons; the average numbers of loaded wagons on main- and branch-line trains were in the proportion of 3:2. Coal consumption per 1,000 gross ton-miles (including weights of engines) was 184.7 lb. for passenger and 160.8 for goods trains and a proportion of mixed trains in each case; the figure for passenger trains was 8 lb. lower than in the previous year, and all the other preceding results are slight improvements also.

Hastings Line Steam Stock

THE renovation of corridor stock, briefly described on another page, for the London-Hastings via Tunbridge Wells steam services of the Southern Region is another step towards meeting unusual traffic demands. Restricted tunnel dimensions necessitate special stock, which has been a factor against electrification. Seating capacity also is limited by both the reduced width and the necessity for corridors and lavatory accommodation. This reacts on peak-hour traffic between London and Tunbridge Wells, where line capacity precludes additional trains in rush hours. Beyond Tunbridge Wells the nature of the traffic calls for corridor stock, with Pullman refreshment cars in some trains. The importance of this as a secondary main line was long ago recognised by the South Eastern & Chatham Railway; its successor, the Southern Railway, much improved the services and built the special corridor stock now reconditioned. Until part at least of the route is electri-

fied, provision of up-to-date stock, as recommended by a sub-Committee of the Central Transport Consultative Committee, seems the only solution. A notable feature of the renovated stock is the absence in compartments of picture or advertisement display frames; even with the not unattractive *décor*, this seems austere, apart from the usefulness of route maps and possible loss of advertising revenue.

Organisation of Banana Traffic by Rail

AN insight into the organisation required for maintaining the supply of bananas in this country at all seasons was given by Mr. E. R. Gooding, Traffic Manager of Elder & Fyffes Limited, in a recent paper to the Railway Students' Association in London. As soon as the sailing of a cargo is advised by radio, the Regional headquarters of British Railways serving the port of arrival is told the estimated number of insulated banana vans required to clear the traffic. Similar information goes to the Freight Rolling Stock Control of the Railway Executive, and some five days before the ship arrives, details of vans required, destinations, and numbers of vehicles for each are passed to these headquarters and the Regions concerned. Requirements vary between 450 and 750 vans per vessel, and Mr. Gooding remarked that although three or four cargoes might be discharged at different ports in a week, he had never known of unloading having to be stopped through lack of rolling stock. He quoted these arrangements as an example of planned co-operation between the user and provider of transport being valuable to both sides, for the measures taken to give early notice of requirements not only ensure availability of vehicles, but give the railways time to plan their assembly in such a way that there is a minimum of empty running.

Successful Suburban Timetable

THE success in practice of the timetable prepared before inauguration in 1949 of the Liverpool Street to Shenfield electrification was shown recently by Mr. A. R. Dunbar, Divisional Superintendent (Eastern), Eastern Region, in his presidential address to the Eastern Region Staff Railway Society. Electrification was early decided on of all running lines, and operation of both fast and stopping interval services—in happy contrast to some surface extensions of London Transport tube lines. The headways of 2 min. over the slow and of 3 min. over the fast tracks, the latter conveying steam-hauled express, semi-fast, and (as far as Stratford) empty stock trains, have stood the test of time. The only alteration necessitated was the increase in the turnaround time of nine-car multiple-unit trains at Liverpool Street from 4½ to 6½ min. Stops of 20 sec. at most and of 30 sec. at three busy intermediate stations were arranged after observation and consideration of London Transport records of trains with air-operated doors; though very tight in peak hours, they have been justified. The timetable, which provides for six kinds of train, has run virtually unchanged for two years apart from extensions needed by traffic development. Traffic leapt from 11¼ million passenger journeys to 17¼ million in the first, and to 20 million in the second year of operation. Meanwhile housing development has been attracted to the area served, and more must be done in the next few years to deal with fresh problems.

Open or Compartment Coaches

AN essential difference between European and American passenger travel is that in Europe it is undertaken almost exclusively in compartment coaches, but in America, apart from the different types of single room occupied by sleeping car passengers, entirely in open cars. In Great Britain, during the war, shortage of stock caused by the heavy demand for passenger accommodation resulted in many of the open coaches that had been built for excursion traffic being drafted to the ordinary express trains. Today, however, the previous position has been restored, and it is only on Southern Region long-distance electric trains, and on trains on which there is a heavy demand for meals (as,

for example, the "Mancunian" and "Merseyside Express"), that open cars, in which passengers taking meals may occupy places throughout the journey, are run in addition to the restaurant cars proper. Although many British passengers prefer compartment travel, it is equally certain that many also like the spaciousness of open stock, and, indeed, in Pullman cars or in such pre-war streamline trains as the "Coronation" and the "West Riding Limited," they are prepared to pay extra for the privilege of using such accommodation. In the circumstances it seems a little surprising that present-day British long-distance trains so seldom incorporate in their formations at least one or two open cars, apart from the restaurant cars, in which passengers who enjoy this type of travel may ride if they so desire.

New Access to Kansas City

IN these days of strenuous air and road competition the opening of a new main line in an area already well provided with railways is an event of unusual interest. As described elsewhere in this issue, such an inauguration, designed to give the Chicago, Burlington & Quincy Railroad high-speed access from the east to Kansas City, took place on February 1. The Burlington previously had a much slower route between the two cities than that of the Santa Fe, using its principal Chicago-Omaha main line as far as Galesburg, 162 miles, and from there a circuitous branch line by way of Quincy, Brookfield, and Cameron Junction. By the construction of 48½ miles of new line, the bringing up to fast running standards of 22 miles of a minor branch, and the use for a short distance of Wabash track, the Burlington has now cut the distance between Brookfield and Kansas City by 24 miles. A total expenditure of \$16,000,000 on the new line has made possible track construction of the highest class, with gradients limited to 1 in 125 and no curves sharper than 80 ch. radius. Freight traffic operation will benefit considerably, but principal interest attaches to the two new "Zephyr" streamline passenger trains, reducing the previous minimum Burlington time between Chicago and Kansas City from 12 hr. 25 min. to 7 hr. 59 min. These will compete with the Santa Fe service, of which the fastest trains take 7 hr. 20-30 min., over a route of 451 miles, compared with the Burlington 466 miles.

Switching out German Block Posts

AN article by Herr F. Grandrath in the February issue of *Signal und Draht* describes methods adopted recently in Germany for switching out block posts. Various arrangements have been used there in the past, but this consists of a combined electric key lock and cutting out switch for each direction of running, working in conjunction with a lock on the lever frame, back-locking the signal lever when the key is turned in it. The key is then withdrawn and inserted in the combined lock and switch, and when turned establishes the through connection. Ordinary block posts have a home signal, with distant operated by the same lever, for each track. The block is worked "normally clear" but with signals normally at danger, and is proved normal before switching can begin. Economic conditions on the Federal lines are compelling increasing attention to such measures. A diagram gives a comparison with Austrian methods under which sometimes on single lines signals are left at danger but unlighted and provided with "not in use" crosses during closed periods, an arrangement which would not, we think, commend itself to British traffic officers.

Equipment for Rhodesia Railways

THE rapid development of the Rhodesia Railways has demanded a continual flow of locomotives, rolling stock, and equipment generally to meet traffic increases arising from this continuing expansion. In this issue we describe a further important contribution to the engine power of these railways. Thirty more Beyer-Garratt locomotives are practically completed, and many are already in service. In recent years large numbers of this highly

developed type of articulated engine have been delivered and further large quantities are on order, some of which are due for delivery this year. The latest locomotives are an improved design of the most powerful type running on these railways developing approximately 2,000 h.p., while mention is also made in our article of a much larger and more powerful type on order for the heavier 80-lb. rail with which nearly 1,000 miles of this railway have already been relaid. These locomotives will have a tractive effort of about 70,000 lb. at 85 per cent as against 55,000 lb. of the type described this week, and will be fitted with mechanical stokers. On completion of the locomotives on order with Beyer, Peacock & Co. Ltd., the Rhodesia Railways will have over two hundred of the Beyer-Garratt type of engine in service on the main line. The continual demand by this railway for this type of locomotive since its introduction in 1925 indicates in particular its great advantages for the haulage of heavy trains over long distances.

Profit or Loss on Passenger Services?

AN article in our February 6 issue discussed passenger train service losses in the U.S.A. and emphasised the concern which these are causing to the railway companies. Recently the Pennsylvania Railroad took the unusual step of appointing an additional Vice-President with a mandate to reduce losses on passenger business until they disappear entirely. Mr. Walter W. Patchell, who was previously in charge of real estate and taxes, has been selected for this difficult mission and seems likely to have his hands full for some years.

The Pennsylvania is the largest passenger carrier among the U.S.A. railways, earning roughly one-sixth of the aggregate passenger revenue. Between 1948 and 1952 its passenger takings fell from \$160.3 million to \$156.3 million or by 2.5 per cent. Over these five years the passenger takings of all the U.S.A. railways declined by 6 per cent, despite some increases in fares. The Pennsylvania is, however, hit hard because it operates at a ratio of 84.1 per cent, compared with the general ratio of 76.1 per cent, and has spent money freely on facilities designed for the safe movement of passenger trains. One of Mr. Patchell's tasks will be to produce an adequate return on that expenditure.

After nationalisation similar tendencies affected British Railways. In 1948, passenger takings were £121.9 million. By 1951, they decreased by 12 per cent to £107 million. A slight recovery last year, caused by various adjustments in fares, left receipts about 10 per cent below the 1948 level. British Railways sought to maintain the volume of traffic by encouraging travel at excursion, weekend, and other cheap fares. In 1948, the number of such low-priced journeys was 84,686,000, or 8.5 per cent of the total; by 1952 the number grew to 265,094,000, or 26.8 per cent of all. The result of this policy was a steady decline in average receipts per passenger-mile and in the average fare collected from a passenger. On the U.S.A. railways the trend of both averages was upward, as the table below shows.

Year	Average receipts per passenger-mile		Average fare	
	British Railways (pence)	U.S.A. railways (cents)	British Railways (pence)	U.S.A. railways (dollars)
1948	1.38	2.34	29.38	1.50
1949	1.30	2.45	27.58	1.55
1950	1.26	2.56	26.0	1.67
1951	1.24	2.60	25.66	1.86

The average passenger journey on British Railways tended to become a little shorter, whereas the U.S.A. fares quoted above represent the average amount paid to individual railways for a journey which lengthened from 64 miles in 1948 to 71.5 miles in 1951.

On both sides of the Atlantic first class travel has shrunk in volume since the war. Journeys on British Railways decreased from 29.3 million in 1948 to 24.5 million in 1951,

or by 16 per cent. The corresponding takings dropped from £15.6 million to £11.3 million, or by 27 per cent. The downward trend was less marked on U.S.A. railways. Journeys by parlour or sleeping car numbered 27.5 million in 1948 and 24.9 million in 1951, a decrease of 9.5 per cent. Takings rose by less than one per cent from \$331.6 million to \$334.1 million, the average fare paid to individual railways going up from \$12.04 to \$13.40 for a journey lengthening from 400 to 410 miles.

The various changes enumerated above had the cumulative effect of reducing the average takings per loaded passenger train mile on British Railways from 11s. 1d. in 1948 to 9s. 5d. in 1951. This loss of gross revenue was most serious in a year when working costs were rising and 6,278,000 more loaded train miles were run than in 1948, an addition of 2.8 per cent. In contrast the U.S.A. railways reduced passenger train mileage from 407.1 million to 355.1 million. That cut of 12.7 per cent assisted them to increase average passenger revenue per train mile from \$2.3 to \$2.5, approximately.

The series of comparative statistics set out above indicates that British Railways allowed the various passenger revenue units to fall in 1951 below the 1948 level, while U.S.A. railways raised the corresponding units to a higher plane. In 1948, passenger revenue was 36.1 per cent of British Railways' total receipts; by 1951 the percentage was down to 28.7. In the interval, freight revenue increased from £181 million to £228 million, or by 26 per cent. A principal cause of this increase was a rise in the average rate per ton-mile from 2.02d. in 1948 to 2.39d. in 1951, or by 18.3 per cent. The U.S.A. railways advanced their ton-mile charge by only 6.7 per cent, from 1.251 cents to 1.336 cents per ton-mile.

From time to time traders in the States have protested that freight rates were being increased to pay for losses on passenger traffic. That may be happening in this country, but we have no means of judging whether passenger services are self-supporting. The time has come for a thorough inquiry into the present arrangements for conducting passenger business and their financial results. Probing into the profit or loss on branch line services is not enough. There is need for an examination of the principles on which main-line services are provided and charges for using them are fixed, in the light of estimates of the net revenue derived from each class or type of travel.

Building a Railway into Labrador

IN view of the importance to the western world of its early completion and of the experience it is providing in winter-time construction in the near-Arctic, the building of the Quebec, North Shore & Labrador Railway, described briefly in our September 5 issue, and the methods to hasten its completion are particularly worthy of study. That the work has already reached the halfway stage is due to the unprecedented decision to continue working through last winter in the face of probable sub-zero minimum temperatures, prompted by the urgent need to transport Labrador iron ore for rearmament work at the earliest possible moment.

Because of the lack of surface communications in the area and the impossibility of constructing service roads, it was obvious at the outset that all the track-laying and most of the earthwork would have to be done telescopically from the base terminal at Seven Islands on the St. Lawrence estuary. What other earthwork could proceed would have to depend on air transport not only for men and their supplies but for construction plant also; its scope was therefore limited to short lengths based on camps at Knob Lake, the eventual railhead, and at intermediate points.

The engineers were thus faced with the fact that the real progress of the construction would depend on how soon three major obstacles in the first 20 miles from Seven Islands could be surmounted. These required the construction of (i) a 2,200-ft. tunnel, and (ii) a 700-ft. truss-girder bridge over the Moisie River, both near mile 12,

and (iii) an even more formidable barrier in the shape of an almost continuous four-mile cliff overlooking the Moisie, to which the line has to run parallel. In this cliff a shelf had to be benched out of the rock to carry the line from mile 12 to mile 16. It was mainly to expedite work on this long length of rock benching that an almost full-strength labour force continued work during the winter of 1951-52. The work was complicated by the fact that the cliff was broken at intervals by deep side ravines, and service roads to give access to this rock-work proved to be impracticable, so that work had to proceed from the two ends only. It was necessary for wagon-drill crews to work in shifts from the two ends only. They were wide enough for shovels and lorries, hugging the irregularities of the cliff face, to get along for mucking and removing the spoil from larger shots. Thanks to the winter work it was possible to complete this task—a matter of 400,000 cu. yd. of rock excavation—and so remove this third obstacle to general progress in June, 1952.

By then many more miles of formation beyond mile 16 were ready for platelaying, work having been carried out from four minor camps, each with its own airstrip. As all earthwork within reasonable distance of each camp-site was completed, and as soon as a service road could be cleared, the camp buildings and equipment were moved to a new site further up the line. By the end of the 1952 normal working season, therefore, some 120 miles of formation were complete throughout the alignment, though they were not continuous. Beyond the three major works between miles 12 and 16, earthworks were comparatively light. The alignment runs up the valley of the Moisie and its tributaries, climbing to an altitude of 1,885 ft. at mile 94. From mile 67 onwards there are seven miles of 1 in 76, the ruling gradient against empty iron-ore trains. Between miles 94 and 150 a rough and rugged belt of country is traversed up to the Quebec-Labrador boundary, where the 2,056-ft. highest point of the line is reached. As these 56 miles run mainly parallel with the topographical ridges the gradients are easy and the earthwork is light.

The subsequent descent to the Labrador plateau is also easy and the ruling gradient against the loaded ore trains is 1 in 250. In the final 160 miles along the plateau the alignment threads its way between innumerable lakes of all sizes and shapes. There are about 40 miles across muskeg, but its depth is only 2 ft. to 3 ft. and below it is firm soil. It is dealt with by two dragline excavators, which work along the two side ditches and discharge (a) the muskeg from them away from the formation and (b) the granular subsoil to build up the formation on the muskeg between the ditches. This muskeg becomes compressed by the subsoil without mud-surfing and the two are consolidated by the dragline-working backwards on top of them on single or double mats.

Bridging on the whole is light. Apart from the three deck truss spans totalling 680 ft. across the Moisie gorge, there are 24 other bridges consisting of from one to three spans varying from 60 ft. to 100 ft. The girders have to be delivered from railhead as it advances northwards. Corrugated-iron culverts are placed in advance of the earthwork as the sheets are flown out to the larger camps and are there bent and fabricated into pipes.

Track-laying began without pre-fabrication of complete rail-length sections, but pre-fabrication at the base camp soon started and the procedure at railhead is now as follows. The pre-fabricated lengths are railed out on special bogie wagons, whose bodies are detachable from the bogies, and the wagons are pushed up behind a tracklaying crane. This lifts the track-sections from the wagons and lays them in front of itself, moving forward as each is laid. When all the sections have been unloaded, the crane lifts the body and afterwards each of the bogies of the wagon separately and places them on the cess. At the end of each day's work the crane re-assembles the wagons and they are returned to base for reloading. Fishbolts are tightened mechanically and spikes are driven with power-hammers, when necessary, into the

timber sleepers. Gravel ballast from a quarry at mile 22 will eventually be used throughout.

Probably the most striking feature of the whole undertaking is the part played by the aeroplane. Not only were regular air-lifts established to deliver men, supplies, materials and plant to the camps, but they are also used for maintenance of equipment. The heaviest items of plant, such as scrapers, large tractors, and large lorries, and even a 1½ cu. yd. shovel are sent by air from the work camps to the main camps for repairs. They are dismantled and the parts are flown separately to be re-assembled at the repair camp. Large and heavy parts have to be flame-cut into sizes and weights that the planes can handle, and they are welded again subsequently. In a typical outlying small work camp there are 65 men, nine tractors, five scrapers, two excavators, three lorries and a variety of smaller equipment. Plywood-panel buildings for main camps were found difficult to move and have been replaced by portable buildings and "winterised tents." On each main camp a number of smaller work camps is based, personnel numbering on an average about 150 at main and 50 at the work camps. Two ten-hour shifts are regularly worked daily in a seven-day week during the working season. Men who stay on into the winter receive bonuses.

Japanese National Railways

A REVIEW by the Japanese National Railways of their activities in 1951 states that with the commencement of armistice talks in Korea in June, 1951, industrial production in Japan based on demands arising from the Korean war showed a downgrade tendency, and normal exports also suffered a slump. This affected the railways; the effect of business recession began to make itself felt in the second half of the 1951-52 fiscal year. The volume of traffic gradually declined and revenue with it. On the other hand, commodity prices, especially those of railway materials, which had been on the increase since the outbreak of war, showed signs of falling, and an extensive rise in railway wages proved necessary. Passenger fares and freight rates were, therefore, raised by 25 and 30 per cent. respectively in November, 1951, in accordance with a decision of the Diet.

The following are some of the principal results for 1950 and 1951:—

	1950	1951
	Millions	
Passenger journeys	3,095	3,379
Goods tonnage originating	129	153
" con-miles	19,195	23,050
Passenger train-miles	61.5	67.8
Goods train-miles	59.5	67.2
	Yen (millions)	
Passenger receipts	73,855	91,554
Goods "	66,364	86,760
Total operating revenue	143,184	183,929
" " expenditure	140,108	186,495

Progress was made with a far-reaching electrification programme. The Ojiya power plant in central Japan was completed in August, 1951; its capacity is 410,000,000 kWh. annually, and the saving of coal by the J.N.R. is 400,000 tons a year. The present policy is to construct electric locomotives—23 were built in 1951—but not to add to steam motive power. The last steam locomotives were built in 1948, and include the powerful "C62" class 4-6-4 type express passenger locomotive weighing 143 tons with tender, which is heavy for 3-ft. 6-in. gauge; this presumably has much increased the capacity of the Japanese locomotive industry, which has been building steam locomotives for other railways in Asia. About 1,000 route-miles out of a total of 12,300 are electrified at 1,500 V., of which 220 have been converted since the war. Sub-urban trains are multiple-unit. In 1951 a new type of 2-C-C-2 main-line electric locomotive was introduced with an output of 2,500 h.p. at one hour rating. Main lines electrified include the section through the 2½-mile submarine Kammon Tunnels, giving through running between the islands of Honshu and Kyushu, referred to in our issue of August 1, 1952. Other rolling stock built in 1951 included 271 coaches for steam and 60 for multiple-unit electric pas-

senger services, and 5,700 goods vehicles. No mention is made in the review of dieselisation of the Japanese National Railways, though, as is well known, Japanese builders have been active in provision of diesel units for other systems in Asia.

Some 30 miles of new line were completed during 1951. Passenger and freight traffic by the railway-operated train ferry and steamer services rose compared with 1950, but was less than during the war years, the decrease being caused apparently by the opening in 1942-44 of the Kammon Tunnels and the cessation from 1945 of the J.N.R. ferry between Shimonoseki and Pusan in Korea.

British Transport Commission Traffic Receipts

THE advance figures for Period 3, the four weeks to March 22, embody some welcome innovations. For the first time, receipts are shown from all the carrying activities of the British Transport Commission, including marine services. What emerges is the high proportion, nearly one-fifth, of the Commission's passenger receipts derived from road passenger transport in Scotland and the provinces; and the small revenue from the Commission's activities as an inland water carrier, which was exceeded by that from the sources of income in connection with the canals other than carrying. Some two-thirds of the B.T.C.'s traffics come from freight; and of that, over three-quarters is derived from British Railways and most of the rest from British Road Services.

	Four weeks to March 22		Incr. or decr.	Aggregate for 12 weeks		Incr. or decr.
	1953	1952		1953	1952	
British Railways—	£000	£000	£000	£000	£000	£000
Passengers ...	6,940	6,854	+ 86	19,647	19,232	+ 415
Parcels, etc., by passen- ger train ...	2,900	2,725	+ 175	8,272	7,842	+ 430
Merchandise & livestock ...	8,747	8,900	- 153	25,115	25,582	- 467
Minerals ...	3,679	3,327	+ 352	10,725	9,901	+ 824
Coal & coke ...	9,121	8,373	+ 748	26,545	24,599	+ 1,946
Total British Railways ...	31,387	30,179	+ 1,208	90,304	87,156	+ 3,148
British Railways C. & D. ...	925	922	+ 3	2,653	2,661	- 8
British Road Services ...	6,230	6,267	- 37	17,858	18,007	- 149
Road Passenger Transport : Provincial & Scottish ...	3,268	3,104	+ 164	9,553	8,878	+ 675
London Transport—						
Railways ...	1,390	1,398	- 8	4,125	3,844	+ 281
Buses & coaches ...	3,006	2,898	+ 108	8,632	7,919	+ 713
Trolleybuses & trams ...	697	756	- 59	2,027	2,081	- 54
Total London Transport ...	5,093	5,042	+ 51	14,784	13,844	+ 940
Ships ...	578	610	- 32	1,709	1,767	- 58
Inland Waterways : Carry- ing—						
Freight charges ...	71	71	Nil	209	207	+ 2
Total from passengers ...	15,469	15,177	+ 292	44,523	42,479	+ 2,044
Total from freight, parcels & mails ...	32,083	31,018	+ 1,065	92,547	90,041	+ 2,506
TOTAL FROM CARRY- ING ACTIVITIES ...	47,552	46,195	+ 1,357	137,070	132,520	+ 4,550

British Railways coal class traffic receipts for Period 3 at £9,121,000 were a record, and exceeded the corresponding figure for last year by more than the 5 per cent which the increase in charges alone would warrant; so that, with the slightly smaller figure of £9,062,000 for Period 2 derived from 14,336,000 tons of coal traffic originating, the tonnage for Period 3 must have been higher; this upward trend is confirmed by the carryings from mines for the week ended March 30, the highest week's total since December, 1949. Mineral receipts for Period 3 at £3,679,000 were well up on the corresponding figure for 1952, and on that for Period 2. The disturbing feature is railway merchandise traffics. The total for Period 3 derived from merchandise and livestock was slightly below last year's figure, despite the 5 per cent increase in rates; on the other hand, it exceeds the total for the preceding period, £8,446,000,

yielded mostly from a merchandise tonnage originating which was nearly 9 per cent below last year's.

Ships' receipts at £578,000 were considerably below last year's figure, though an improvement on Period 2. As nearly three-quarters of these traffics come from merchandise, mails, parcels, and livestock, and a high proportion from Irish services, it is impossible to make any deduction as to the effect of the foreign travel allowance. As we have said before, it is a pity that the sources of the ships' receipts are not shown in the full four-weekly figures, by geographical areas or some other useful breakdown.

PERCENTAGE VARIATION 1953 COMPARED WITH 1952

	Four weeks to Twelve weeks to March 22 March 22	
	1953	1952
British Railways—		
Passengers ...	+ 1.2	+ 2.1
Parcels ...	+ 6.4	+ 5.4
Merchandise & livestock ...	- 1.7	- 1.8
Minerals ...	+ 10.5	+ 8.3
Coal & coke ...	+ 8.9	+ 7.9
Total ...	+ 4.0	+ 3.6
C. & D. services ...	+ 0.3	- 0.3
Ships ...	- 5.2	- 3.2
British Road Services ...	- 0.5	- 0.8
Road Passenger Transport ...	+ 5.2	+ 7.6
London Transport—		
Railways ...	- 0.5	+ 7.3
Buses & coaches ...	+ 4.0	+ 9.0
Trolleybuses & trams ...	- 7.8	- 2.5
Total ...	+ 1.0	+ 6.7
Inland Waterways ...	-	+ 0.9
Aggregate ...	+ 2.9	+ 3.4

Diesel Traction in Ireland

THE six-car diesel trains now being used experimentally on the Belfast-Bangor line of the Ulster Transport Authority were described by Mr. C. T. Brunner, President of the Institute of Transport, speaking in Belfast on March 13 at the annual dinner of the Northern Ireland Section of the Institute, as "nothing less than a new traction system, which appears to be an advance on other diesel units at present in use, both in initial outlay and in operating costs." The diesels were bound to be more attractive to the travelling public because of the absence of smoke and coal dust. By using flat diesel engines identical with the power units in the Ulster Transport Authority buses, a valuable piece of engineering integration had been achieved, as both could be overhauled and maintained in the comprehensive Duncrue Street workshops.

Although the six-coach trains seated 400 persons, they were much lighter than steam trains of similar capacity, and this would cut the cost of track maintenance. Mr. James Courtney, Chief Engineer, U.T.A., who had been responsible for the new diesel trains and superintended their construction, was much to be congratulated. The cost of a complete changeover to diesel trains on the Belfast-Bangor line was estimated at £473,000. The saving in operational costs which these trains would give had been estimated at about £30,000 a year, enough, on the basis of present traffic, said Mr. Brunner, to justify the capital expenditure economically, but it would be found that the diesels would attract a great deal of new traffic too. Mr. G. B. Howden, the newly appointed Chairman of the Ulster Transport Authority, in his evidence to the Northern Ireland Transport Tribunal, had said that by the adoption of diesel traction the whole character of railway working would be changed for the better. "You have made a most promising start in this direction," Mr. Brunner commented. At the inaugural meeting of the Irish Section of the Institute in Dublin the previous evening Mr. Brunner spoke on transport in the Republic of Ireland in the light of the growing industrialisation of the country. He thought that the introduction of a number of diesel units provided hope that the solution of some of the railway transport problems of the Republic might lie in the use of small up-to-date operating units which would attract traffic.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Welded Conductor Rails

March 27

SIR,—I note with interest the article in your March 27 issue on the introduction on the Southern Region of welded conductor rails.

The increased rate of installation with the elimination of fished and bonded joints and the economies accruing therefrom cannot be overstressed not only in capital costs but in maintenance costs also. Further savings will presumably be effected with the introduction of continuous welded lengths.

The installation of welded conductor rail, however, is not new. I believe that it has been standard procedure on the L.M.S.R. and the London Midland Region since 1938-39, continuous lengths up to approximately half-a-mile being installed. In the process satisfactory anchor insulator units and expansion gap bonds have, I believe, been developed and proved in service.

Yours faithfully,

J. M. ROFFE

24, Ridgeway Avenue, Littleover, Derby

Density of Traffic

March 31

SIR,—An editorial in your March 27 issue deals with British Railways as "An Expanding Industry" and says they are "unique in their density of traffic compared with any major railway in the world." You have forgotten the Pennsylvania Railroad, which in 1951 worked 56,925 million net ton-miles over some 10,040 miles of road. British Railways produced 26,650 short ton-miles from 19,357 route miles. Measured by ton-miles per mile of road, the Pennsylvania traffic was more than four times as dense. It will be instructive to see how the business was handled.

The average Pennsylvania freight train of 66 wagons carried as much tonnage as eight of our average trains and moved twice as fast. It turned out 22,500 net ton-miles in an hour, eighteen times the output of freight train working on our lines. That feat involved the movement of 45,558 gross ton-miles in a train-hour. When locomotives, as well as wagons, contents and guards' vans were taken into account, the Pennsylvania recorded 129,000 million gross ton-miles for its 1951 freight services. Nowhere else can steel rails be carrying such a heavy load of mixed traffic at a fairly high speed. A year ago the management at Philadelphia was planning to lay down 100,000 tons a year of heavier and higher rail of a new type to reduce the cost of permanent way maintenance.

Yours faithfully,

R. BELL

Frognaal, N.W.3

A Square Deal for our Railways

March 19

SIR,—Hardly a week passes without comment in the Press and in Parliament about our railway services, much of it to my regret being of a wild and uninformed character and to a degree irresponsible. Only this week an important Manchester daily carried an editorial describing the conditions of the services as having deteriorated since the railways were nationalised, whereas the thoughtful public knows well that what has caused the present state of the services has mainly resulted from the aftermath of the war, the economic crisis following and the existing stranglehold on much-needed capital development.

As a railway traveller doing nearly a thousand miles a week I feel I must defend our much-maligned British Railways. Although there is much to criticise I cannot agree that matters will be improved by slinging mud at officials and services, much of it with a background of

political tub-thumping. I would like to see the higher officials defend themselves more and indicate clearly, as they could, that the public also has its part to play.

British Railways to-day justify themselves fully; it is we who do not do them justice. We have to admit that the Government has a wide and important range of regulation to exercise in the national interests, but I think that its policy towards British Railways in restricting capital development has been carried to an extreme limit.

What the Railways need to-day is a five-year-plan and an allowance of £500,000,000 to achieve and recreate efficiency and up-to-date equipment. Until something of this kind is done we cannot fairly condemn the present state of services however much we may criticise and find fault. Meantime we continue to give our railways too little, too late and too grudgingly.

We are all delighted that this summer conditions will have so far improved that a general speed-up is being permitted, but I would ask our Executive officers not to allow their attention to become too concentrated on a few named expresses and see also that the many secondary and connecting services receive attention and share fully in the improved timings and schedules.

Yours faithfully,

B. NEWTON BROOK

Vistabay, St. Hilary's Drive, Deganwy, North Wales

Decentralising the Railways

March 23

SIR,—Many of the letters published in your columns have had much to say on the subject of the new Transport Act decentralising the railways. Except where there is a political axe to grind, my impression is that decentralisation is recognised as being desirable, and amongst many railwaymen I have spoken to on the subject there is a real desire for more pride in the job.

I have tried to find out what is the real feeling behind it all, and I can only summarise it as something like this. Integrated transport was sold to them as something which would bring great benefits in service and economy, apart from the supposed individual advantages to be gained from these benefits, but the scheme has become derailed somewhere. The railwayman, who at heart is probably one of the most loyal servants, and, in the majority of cases, is really proud of his job, finds his far-away bosses selling out to road transport without a fight. I have heard more than one deplore the closing of an old-established line (on the usual grounds of its being uneconomical to run), for he knows that no real effort has been made to win back the public from the alternative bus route.

It is my opinion that the railwayman wants to see his firm expand in business, for who in any business has real confidence when it is always contracting? He wants to see "his railway" go into competition with alternative means of transport, and when he knows that what he has to offer is greater speed and comfort, as against a multitude of stops and traffic hold-ups, he has every right to ask why there is no competition. These points undoubtedly lend substance to the feeling that decentralisation, with more regional control and responsibility, will provide a better opportunity of giving closer study to local traffic requirements.

The only answer I can find to the problem facing railways today is competition, and more competition. I even believe that it would be a good thing for the new railway organisation to be split up not into watertight regions but into semi-overlapping companies. This would ensure a number of services available to the same destination, but offered by different companies.

Yours faithfully,

S. J. H. DYSON

33, Chelwood Gardens, Kew Gardens

THE SCRAP HEAP

Third Class in India

A third class crowd is opposed to you only so long as you are outside the door. As soon as you force your way in all antagonism vanishes. You are accepted as part of the crowd and you join it in preventing others from seeking entry into the compartment.—*From an article, "Travelling Third Class," in the Northern Railway Magazine.*

Railway Footpaths

The idea of a disused railway being converted into a pleasant walk has been most successfully carried out in Jersey. The lines and sleepers have been removed and grass allowed to grow. At places where the line goes through a cutting the banks have been furnished with flowering shrubs, making a pleasant walk. It runs from St. Helier Weighbridge Station to near Corbière lighthouse, some ten miles, and is largely used by children who go to school in St. Helier and live in the country.—*From a letter to "The Times."*

[The disused railway is that of the Jersey Railways & Tramways, on which services were discontinued in 1936. The Jersey Eastern, from St. Helier Snow Hill to Gorey, was closed some years earlier—Ed., R.G.]

Last L.N.W.R. 0-8-2 Tank

No. 47877, the last of a class of 30 0-8-2 tank locomotives built by the L.N.W.R. for freight shunting duties in Lancashire between 1911 and 1917, has just been withdrawn from service by the London Midland Region for breaking up. Built at Crewe works to the design of Mr. C. J. Bowen-Cooke, these locomotives had saturated boilers with a working pressure of 170 lb. per sq. in., inside cylinders of 20½ in. dia. by 24 in. stroke, and coupled wheels of 4 ft. 5½ in. dia. Tractive effort was 27,242 lb. No. 47877 was built in January, 1912, and

numbered 1659 in the ex-L.N.W.R. stock. Subsequently the locomotive was renumbered 7877 under the L.M.S.R. renumbering scheme and became 47877 in British Railways stock in May, 1948.

Peep Across the Curtain

(See the Scrap Heap for March 27)

A correspondent queries whether the Ural Mountains are the next highest point eastwards from Sibley's Halt, 409 ft. above sea level, on the Thaxted branch, in Essex. The halt lies just south of lat. 52 deg. N., which passes through the Teutoburgerwald ridge near Bielefeld in Westphalia, and through high ground north of the Harz; the former certainly and the latter possibly exceed 400 ft. He states, however, that there is probably no railway station at this height between Sibley's and the Urals; the railways crossing the Teutoburgerwald use natural gaps, including that at Bielefeld through which passes the German Federal Railways four-track main line from Cologne to Berlin, at an altitude of some 380 ft. Tiptoe views from Sibley's are complicated by the fact that the platform is below standard height.

Name and Nature

The Edmonton, Yukon & Pacific—it doesn't touch the Yukon and goes nowhere near the Pacific Ocean—is a grandiloquent name for a very small railroad. Few outside the city of Edmonton have ever heard of the grand old E.V. & P.R.R. This is not surprising, for, in spite of its name, the railway itself doesn't get around much outside city limits. No one yet knows whether railway builders Sir Donald Mann and Sir William Mackenzie ever intended the Edmonton, Yukon, and Pacific to extend eventually to the Ocean of that name. . . . To-day the railroad runs about 10 miles through city and district and transfer trains

trundle back and forth servicing a number of local industries which would otherwise be without railway facilities.—*From the "Canadian National Magazine."*

Card to Adelaide

The Post Office is not going to allow the G.N.R. to get away with the idea that it made a mistake in sending a Christmas card addressed to "Adelaide" to Australia. Last week I told the story of the card sent from the Belfast terminus of the G.N.R. to Adelaide, the station known as Adelaide & Windsor just about a mile away, and which has just turned up after making a trip to Australia and back. There was no slip up by the Post Office, I am assured, because there is no post town in Great Britain and Northern Ireland named Adelaide.—*From the "Belfast Newsletter."*

Cuts by the Score

Redundancy and duplication of services are not usually associated with the musical world. In fact, the following criticism of a performance at the Royal Festival Hall might well have been written by an arch-planner of transport:—"For considerable periods the four oboe players had nothing to do. The numbers should be reduced, and the work spread more evenly over the whole of the concert, thus eliminating peaks of activity.

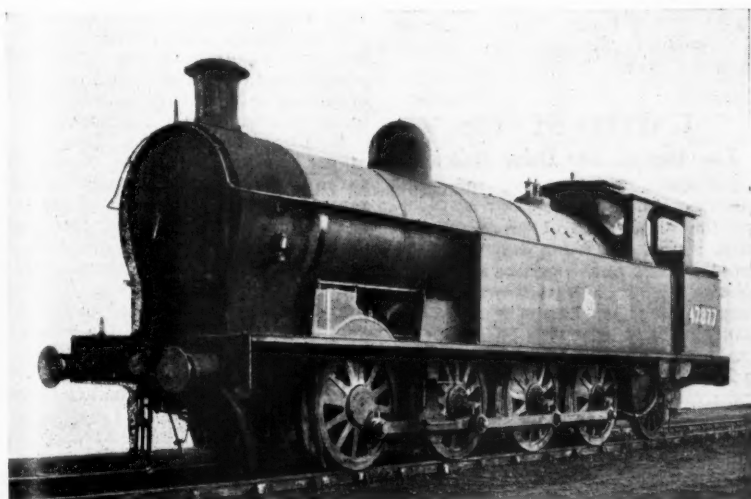
"All the twelve first violins were playing identical notes. This seems unnecessary duplication. The staff of this section should be drastically cut; if a large volume of sound is required, it could be obtained by means of electronic amplifier apparatus.

"Much effort was absorbed in the playing of demi-semi-quavers. This seems an excessive refinement. It is recommended that all notes should be rounded up to the nearest semi-quaver. If this were done it would be possible to use trainees and lower grade operatives more extensively.

"There seems to be too much repetition of some musical passages. Scores should be drastically pruned. No useful purpose is served by repeating on the horns a passage which has already been handled by the strings. It is estimated that if all redundant passages were eliminated the whole concert time of two hours could be reduced to twenty minutes, and there would be no need for an interval.

"The Conductor agrees generally with these recommendations, but expresses the opinion that there might be some falling-off in box office receipts. In that unlikely event it should be possible to close sections of the auditorium entirely, with a consequent saving of overhead expense—lighting, attendants, etc.

"If the worst came to the worst, the whole thing could be abandoned and the public could go to the Albert Hall instead."



Ex-L.N.W.R. 0-8-2 tank No 47877, now withdrawn for scrapping, was the last of a class of 30 engines

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Coal Traffic in 1952

The railways moved 24,854,853 tons of coal by rail from the mines in 1952. This was an increase of 1,784,909 tons over the previous year. Coal for local consumption maintained the tendency to increase, rising from 15,829,000 tons in 1951 to 17,999,000 tons in 1952. Transvaal coal production amounted to 20,325,878 tons and Natal produced 4,528,975 tons.

New Rolling Stock

In December ten new locomotives, 14 new passenger vehicles, and 177 goods wagons were placed in service. The new locomotives were two class "4E" electric units, one electric shunting unit, and seven steam shunting locomotives.

PAKISTAN

Raising Loadings of Sections

Consideration is being given to raising the strength of the following sections from branch to main line loading: Shershah - Bhakkar - Kundian; Kundian - Daud Khel - Jand - Campbellpur, on the northern part of which there are some large bridges; Khanewal-Shorkot-Lyallpur-Wazirabad; and Lalamusa-Malakwal-Kundian.

The Ravi Bridge, near Abdul Hakim, on the Khanewal-Shorkot line, is to be regirdered in 1954.

SOUTH AUSTRALIA

Line to Uranium Deposits

The Premier has given instructions that the railway line linking the Radium Hill uranium field with the proposed £A1,000,000 uranium treatment works at Port Pirie must be completed within six months, instead of twelve as originally planned. Construction work has already begun. He said that although the line was being built mainly to transport uranium ore concentrates, it was estimated that inward traffic to the field, consisting of machinery, housing and stores, would amount to 20,000 tons a year.

CANADA

C.N.R. Staff Training Course

A staff training scheme, open to promising junior officers of the Canadian National Railways, will begin in June. Candidates will be enrolled in a six-week course. The first part, to be given in Montreal, will give a broad perspective of the C.N.R. operations, and the place of the railway in the Canadian economy. Subjects will include the company's historical background, the regulatory framework, the competitive environment, economics of

railway operations, pricing in theory and practice, industrial relations and personnel policies. The lectures will be given by senior system officers.

The second part will consist of a three-week course at the University of Western Ontario, London (Ontario). It will cover the principles and practices of organisation, administration and control, common to industrial management generally. The "cases" method of practical problems drawn from experience will be used in these studies instead of the conventional lecture system. For part three of the course the candidates will return to Montreal, to study the application of general management principles to the particular problems of the C.N.R.

Throughout the course other attributes of a good executive will be encouraged: the ability to think analytically, speak effectively and write with clarity. This year the course will be limited to approximately 40 students, to be selected from a group of about 100 candidates nominated by the departmental heads of the company.

Toronto Underground Railway

Construction of the 4½-mile rapid transit line for the Toronto Transportation Commission is now more than 80 per cent complete. It includes 2½ miles of underground line, the first in Canada, and the whole of this has now been finished. The 20 per cent of the works remaining to be carried out are on open-cut excavation, street overbridges, stations, storeyards, workshops and permanent way. Some 3.88 miles, or 40 per cent of the total 9.56 miles of track have already been laid, and it is expected that the whole undertaking will be completed and ready for opening early in 1954. The total estimated cost is \$48,000,000, of which \$8,000,000 are for rolling stock. This will consist of 104 cars on order from the Gloucester Railway Carriage & Wagon Co. Ltd.

UNITED STATES

Los Angeles - San Diego Railcars

To meet the constantly increasing passenger traffic between Los Angeles and the naval base of San Diego, 128 miles distant, the Atchison, Topeka & Santa Fe has put in service two Budd diesel-hydraulic railcars, working them coupled together with multiple-unit control. They leave San Diego at 7.15 a.m. for a non-stop run to Los Angeles in 2½ hr. (the fastest time ever scheduled, and requiring an average of 56.9 m.p.h. notwithstanding numerous speed restrictions). The return non-stop run, at the same speed, starts from Los Angeles at 4.30 p.m., and between these two journeys the railcars make another return journey with a number of intermediate stops in 2½ hr.

The 2½ hr. timing equals that of the

two "San Diegan" diesel-hauled streamline trains, each of which makes two double journeys daily; these are trains of 9 to 12 vehicles, making the principal intermediate stops. The railcars carry "coach" or third-class passengers only, and on their non-stop runs command an extra fare of 50 cents per seat. Since their introduction the traffic has increased by 12 per cent., and they have proved so reliable and economical in service that the Santa Fe is considering the introduction of similar cars elsewhere on its system.

ITALY

Cost of Flood Damage

The cost to the State Railways of the damage caused by the widespread floods at the end of 1951 has been assessed at lire 3,600 million. This figure includes lire 1,446 million in Southern Italy, Sicily and Sardinia, and about lire 1,000 million caused by the landslide on the Simplon line between Domodossola and Iselle. The remainder was incurred in the Bologna, Genoa, Milan, Turin, Verona and Venice districts. To these figures must be added damage put at lire 50,000,000 to railwaymen's houses.

Expenditure of this size exceeds by far the normal funds available for such purposes. It has therefore been necessary to make legal provision for an extraordinary allocation to the State Railways of Government funds to the extent of lire 3,600 million and a Bill is now being submitted to the Chamber of Deputies.

FRANCE

Tickets as Bond Interest

Subscribers to the new National Railways 10,000 fr. fifteen-year bonds have been offered coupons in the form of railway tickets. The French railways have on previous occasions issued bonds which benefit from periodical drawings of railway coupons entitling their holders to travel over certain distances.

Bonds are of two types. One, issued at par, entitles holders to choose between a yearly interest payment in cash, representing the equivalent of the cost of third-class transport for a distance of 90 km., with a guaranteed minimum of 450 fr. (4.5 per cent) or alternatively a third-class ticket for 100 km. Redemption is correspondingly tied to the railway tariff, holders having the option to accept payment in railway tickets.

The second type, to be issued at 9,550 fr., is of a traditional character, with interest at 6 per cent net.

Operating Statistics

During 1952 passenger train mileage operated by the S.N.C.F. totalled 115,000,000 miles. Some 46,000,000 were run by express trains, 56,000,000 by local and stopping, and 13,000,000 by

Paris suburban trains. The total freight train mileage was 108,000,000.

Railcar Depot at Lyons

The destruction during the war of the railcar depot at Lyon-Vaise entailed for some years the dispersal of diesel railcars and shunting locomotives. The depot was rebuilt and re-opened in 1952. By the end of 1953 it is intended that the new depot will house 26 600-h.p. railcars of standard type and some twenty multiple-unit railcar sets for long-distance connections to Bordeaux, Strasbourg, and Marseilles. In addition, a large number of diesel shunting units will be handled.

The Lyon-Vaise depot now includes an uncovered area 360 ft. long, and a covered shed 236 ft. long for washing, inspection, lubrication and fuelling; a group of sidings for the garaging of vehicles; a repair workshop, 324 ft. long by 141 ft. wide, with a clear height of 31 ft., which includes inspection pit and four gantry cranes, two of 20-tonne and two of 10-tonne capacity; and office accommodation for the staff.

BELGIUM

Station Modernisation at Liège

The forthcoming electrification of the Brussels-Liège line and landslides which threaten the line call for urgent reconstruction works which, it has been hoped, may be extended to include the modernisation of the buildings at Liège-Guillemins Station and town planning improvements of land adjacent to the railway at Liège. The National Rail-

ways have stated that fr. 63,000,000 is the most that they will spend on the works which they are willing to undertake for their own account. These works include the electrification of Nos. 1, 2, 6, 7, 8 and 9 roads, the raising of Nos. 6-9 roads by 20 in. along the hillside, and the extension of the existing subway to No. 9 platform. They are ready to carry out further work if the necessary credits are forthcoming from other sources, and negotiations are being conducted with a view to arriving at a comprehensive plan which will also be satisfactory from a town planning point of view.

WESTERN GERMANY

Fehmarn Route to Denmark

An international conference at Copenhagen has discussed the direct route from Western Germany to Denmark via the German island of Fehmarn and Rödby Havn in the Danish island of Lolland. The sea crossing will be some 15 miles. From Rödby a new railway will link up at Nykøbing, in the island of Falster, with the main line from Gedser to Copenhagen which crosses to Zealand by the Storstrom Bridge.

Funds are available for necessary construction in Denmark, including the ferry terminal at Rödby and a motor road. In Germany, the line from Hamburg to Grossenbrode via Lübeck already is used by fast trains to Grossenbrode in connection with sailings to Gedser. Construction of a bridge from the German mainland to Fehmarn and

of railways in that island will be very costly, and attempts are being made to interest investors in various countries. The Danish, Federal German, Norwegian, and Swedish Governments are interested in the project.

Until construction on the German side is completed, temporary operation is being considered of a ferry between Grossenbrode and Rödby Havn.

U.S.S.R.

Moscow Underground Extension

The Ring Line of the Moscow Metro will be completed this year. The first section of this line, from the Gorky Park of Rest and Culture to the Kursk Station, was opened in 1950. The second section, from the Kursk Station to the Byelorusskiy Station was opened last year. The third and last section will be from the Byelorusskiy Station to the Gorky Park, with stations at Krasnopresnyenskaya and the Kiev Station, making a total route mileage of about 12½ miles. The seven principal main line stations of Moscow will all be linked by this line.

It has also been announced that the electrification of the suburban sections of the main line railways radiating from Moscow will be completed this year. Sections of six of these main lines had been electrified before the war. The fourth Five-Year Plan, ending in 1950, already provided for the extension of four of these electrified sections, for the electrification of two further radial lines and of the inner suburban ring line, leaving only two radial routes to be electrified.

Publications Received

Tests on Road Bridges. By Norman Davey, D.Sc., Ph.D., M.I.C.E., National Building Studies Research Paper No. 16. Department of Scientific & Industrial Research. H.M. Stationery Office. 33 pp. 9½ in. x 6 in. Illustrated. Price 3s. net.—Many of our road bridges of both (a) the cast-iron girder and (b) masonry arch types have been in service for from 50 to 150 years and their strengths were problematical. Some 33 type (a) and 22 type (b) bridges, many of them railway overbridges, have now been tested, some to destruction. Vibrating-wire type strain gauges, and 20-ton single-axle test loads, in combination with a reference instrument of fixed frequency, were used. The tests on the cast-iron girder bridges, which virtually all had jack-arching between the girders, showed considerable distribution of load, only a fraction of the applied load affecting the girder immediately below it. Generally, the arches proved stronger than calculations suggested. The tests also showed that (1) contrary to theory, there is considerable movement in the abutments; (2) failure does not necessarily occur directly tensile stresses are produced; (3) the arch barrel may behave as an arched slab rather than as a series of arch ribs; (4) the strength of the consolidated-fill

cushion over the barrel contributes greatly to the strength of the structure; and (5) bridges reveal both elastic and plastic properties, and failure may occur by creep under a heavy sustained load. The diagrams and illustrations of the bridges and instruments are excellent.

Railway Equipment from Japan.—The Japan Association of Railway Industries, representing manufacturers and exporters, has issued a new illustrated catalogue of locomotives, rolling stock, and associated equipment manufactured by its members. In the introduction it is stated that Japan produces each year 455 steam locomotives, 155 electric locomotives, 2,047 passenger coaches, and 13,470 wagons, besides a considerable number of diesel engines. Steam tender and tank locomotives for all classes of service are illustrated, together with mixed traffic and passenger electric locomotives, and diesels for main-line and shunting duties. In this section, as in those dealing with passenger and freight rolling stock, dimensions are shown on diagrams accompanying the illustrations and are tabulated together with other data. Several pages in the passenger coach section are in colour. The equipment section covers castings and forgings, springs, brake, electrical, and lighting

equipment, diesel engines, and miscellaneous mechanical parts. The Japan Association of Railway Industries, which is supervised by the Ministry of International Trade & Industry, has its headquarters at No. 1, I-Choma Marunouchi Chiyoda-Ku, Tokyo.

Hand Tools and Accessories.—Abingdon King Dick Limited has recently issued a 6th edition of a publication which describes and illustrates the firm's hand tools and accessories for use in the engineering industry and transport services. A wide range is depicted which includes, among others, cabinet sets for wall mounting, hand, and tool chest sets. The tools listed are suitable for B.S., B.S.F., Whitworth, American and metric sizes. The sets and individual items are catalogued by stock numbers.

Wiggin Nickel Alloys No. 19.—The subjects included in this issue relate to the uses of Nimonic 75 for gas turbine and diesel engine components, resistance to corrosion by the use of Monel in recording thermometers, immersion heaters and centrifugal pumps. The issue also includes a description of the new Esso oil refinery at Fawley, together with details of processes for which Monel and K Monel are used.

A New Chicago-Kansas City Main Line

Burlington route shortened by completion of cut-off and high-speed service inaugurated

ONE of the most important railway developments of recent date in the United States has been the opening, by the Chicago, Burlington & Quincy Railroad, of its new direct route between Chicago and Kansas City. Previously, Burlington trains between these two cities took the Omaha main line from Chicago as far as Galesburg, 162 miles, and from there the St. Joseph branch to Cameron Junction, 433 miles from Chicago. Here they diverged to the south to reach Kansas City, a total journey of 490 miles. From this line there was a little-used branch from Laclede, 62 miles short of Cameron Junction, south-westwards to Carrollton.

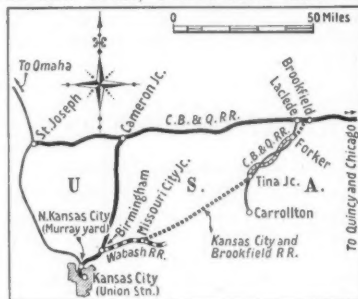
The new "Centennial Cut-off," of which constructional details appeared in our April 27, 1951, issue, takes off from the Galesburg-St. Joseph line at Needles Junction, between Brookfield and Laclede, and cuts across for 6½ miles to join the Carrollton branch at Forker, the original Laclede-Forker section having been abandoned. Some 22 miles of the Carrollton branch have been brought up to main line standards, as far as Tina Junction, and from there 42 miles of new line have been built to a junction with the Wabash Railroad at Maxwell; Wabash tracks are used thence to Birmingham, where Burlington metals are resumed for the last 12½ miles into Kansas City. This link-up reduces the length of the Burlington route from Chicago to 466 miles, only 15 miles longer than the 451 miles of the Atchison, Topeka & Santa Fe Railway, which has the most direct route.

Engineering Features

While the primary object of the Burlington cut-off is to facilitate the movement of freight, its passenger possibilities are not being neglected, and for this reason the track throughout from Needles Junction to Maxwell has been laid or brought up to the highest main line standards. The maximum gradient is 1 in 125 and the sharpest curve is one mile radius; the rails are 112 lb. per yd., and the ballast consists of 6 in. of crushed limestone screenings as sub-ballast, overlaid with blast furnace slag ballast to a depth of 12 in. under the sleepers. Although the track is single, embankments and cuttings have a minimum width as much as 24 ft. at track level and embankments above 15 ft. in height are proportionately wider; the embankments were laid in 8 in. layers, each of which was compacted by six passes or more of sheep's foot rollers before the next layer was added. The cutting at Summit, 95 ft. deep, required rock blasting; the length of this cutting is 5,500 ft. The biggest bridge on the new line is across Grand River, and consists of a 400 ft. truss span flanked on each side by two 100 ft. plate girder spans. There are 30 other bridges over waterways, five over roadways, and one

over another railway, as well as nine road overbridges.

Some interesting modern methods were used in the preliminary planning as well as in the work itself. In siting the new route, considerable time was



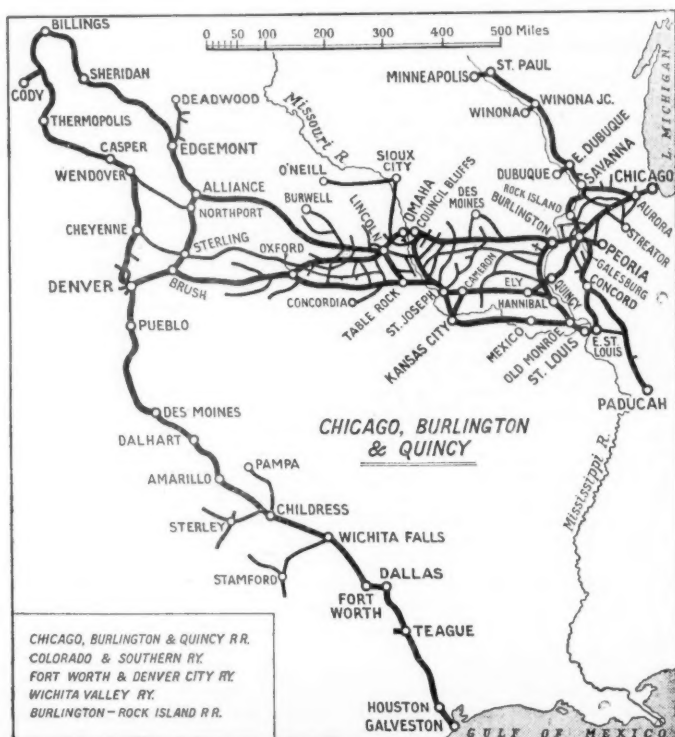
The new cut-off shortening the Burlington route to Kansas City

saved by aerial surveys, in conjunction with U.S. Geological Survey quadrangle maps. Future maintenance will be markedly affected by the application of scientific principles of soil mechanics to the earthworks. Two core-drilling outfits were used in the early stages to establish the subsoil conditions, and the information so obtained proved of great value in determining the most suitable slopes for cuttings and embankments.

A soil analyst, equipped with a field laboratory, was on site throughout, and a soil consultant visited the work frequently to advise on soil and related problems. The work was begun in 1950, and completed in October, 1952, one month earlier than the target date, at a total cost of about \$16,000,000.

As previously mentioned, the new line is single, with 7,800 ft. passing loops at about 10-mile intervals, and centralised traffic control is installed throughout. The first freight trains were operated over the line on October 28, 1952, and the first passenger trains on February 1, 1953. At Quincy, trains previously lost time by crossing the Missouri River into and out of the city, but this detour is now being avoided by the building of a new station at Quincy West.

Before the opening of the new route, the Burlington operated a daily train known as the "American Royal," with sleeping cars and chair cars for both Kansas City and St. Joseph, leaving Chicago at 6.30 p.m., reaching Kansas City at 7.30 a.m., and making 30 regular and extra conditional stops, which were the main reason for the running of the train. The return "American Royal" left Kansas City at 8 p.m. and was due in Chicago at 8.25 a.m. Such a service could offer little competition with that of the Santa Fe, with its 9.30 a.m. "Kansas Cityan" making the 451-mile



The Chicago Burlington & Quincy Railroad and its subsidiaries

run from Chicago to Kansas City in 7 hr. 25 min., and the corresponding return "Chicagoan" at 12.30 p.m., in 7½ hr. In addition, the Santa Fe has the noon "Grand Canyon" (9 hr.), the 1.30 p.m. "Chief" (8 hr. 20 min.), the 5.45 p.m. "El Capitan" (7 hr. 20 min.), the 6 p.m. "Texas Chief" and the 7 p.m. "Super-Chief" (both 7½ hr.), and the 10 p.m. "Kansas City Chief" (9½ hr.) from Chicago to Kansas City, most of them running through to Texas or California, and corresponding trains in the return direction.

Streamline Equipment

The Burlington management, however, has decided to make a bold attempt to capture some of the Chicago-Kansas City passenger traffic, and with this in view put two streamlined trains in service on February 1. One is the "American Royal Zephyr," a greatly accelerated version of the previous "American Royal"; westbound this leaves Chicago at 10 p.m. and reaches Kansas City at 7.55 a.m., an acceleration of 3 hr. 5 min., and eastbound it leaves Kansas City at 10 p.m., and reaches Chicago at 7.55 a.m., 2½ hr. faster than before. The second train is a new "Kansas City Zephyr," leaving Chicago westbound at 12.30 p.m. and reaching Kansas City at 8.45 p.m., the return journey is begun at 12.1 p.m., and the train is into Chicago at 8 p.m., in 7 hr. 59 min. The fastest run of the latter is over the 162.2 miles from Galesburg to Chicago non-stop in 138 min., at 71 m.p.h. High speed freight services also have been introduced, the fastest taking 13½ hr. from Chicago to Kansas City.

New stainless steel stock has been in-

stalled on both services. The "American Royal Zephyrs" each are made up to ten cars, comprising one postal car, three baggage cars, three sleeping cars (with varied types of room accommodation), one combined dome-coach-buffet-lounge car, and two reclining seat coaches, and provide through vehicles for both Kansas City and St. Joseph. The six-car "Kansas City Zephyrs" each comprise one combined postal and baggage car, two reclining chair coaches, one dining car, one dome-coach-buffet-lounge car, and a Vista-Dome parlour observation car for first class passengers.

For stations between Brookfield and St. Joseph, connection has been provided with the "Kansas City Zephyrs" by transferring to this route the two earliest Burlington diesel streamline trains—the "Pioneer Zephyr," which was introduced in 1934 and has run over 2,500,000 miles so far, and the "Mark Twain Zephyr" put in service in 1935. These two four-car trains run through over the 306 miles between Galesburg and St. Joseph, maintaining the service at intermediate stations withdrawn by the acceleration of the "American Royal Zephyr."

An elaborate publicity campaign preceded the introduction of the new trains. In addition to pamphlet and poster advertising and radio feature programmes, a train incorporating vehicles from both new "Zephyrs" was exhibited at cities and towns on the route, and 90-min. trial runs were offered to passengers at as low a charge as \$1 a head.

The addition of the two new "Zephyrs" brings the total of Burlington "Zephyr" services to fifteen, requiring 25 sets of cars for their maintenance;

the five sets on the "California Zephyr" service are owned jointly with the Denver & Rio Grande Western and Western Pacific Railroads. The Great Northern "Empire Builder" and Northern Pacific "North Coast Limited" streamlined trains are also operated by the Burlington between Chicago and St. Paul, and the stock of both is jointly owned by the latter company.

High "Zephyr" Speeds

Some of these trains are among the fastest in the world; between them, they make ten runs daily booked at over 80 m.p.h. from start to stop (headed by two East Dubuque-Prairie du Chien runs of 54.6 miles in 38 min., 86.2 m.p.h., and two La Crosse-Prairie du Chien runs of 57.7 miles in 41 min., 84.4 m.p.h., all made by the "Twin Cities Zephyrs" between Chicago and St. Paul-Minneapolis). These trains, two daily in each direction, cover the 427 miles between Chicago and St. Paul in 6½ hr., with eight intermediate stops included, and the heavier "Empire Builder" and "North Coast Limited" trains require only 6½ hr. each way, with six intermediate stops. On the Omaha main line, also, the "Denver Zephyr" is an extremely fast train, allowed only 7 hr. 8 min. for the 492 miles from Chicago to Council Bluffs (Omaha), with four intermediate stops; the fastest point-to-point run westbound is 127 min. for the 162.2 miles from Chicago to Galesburg (76.6 m.p.h.), and in the reverse direction 97 min. for the 124.5 miles from Galesburg to Aurora (77 m.p.h.). Speeds up to 100 m.p.h. are attained frequently in the course of journeys by these services.

IMPROVEMENT OF STAFF AMENITIES AT NORWICH.—The Eastern Region is to spend £8,000 on the provision of improved staff amenities in the passenger yard at Norwich Thorpe. A new building, replacing old carriage bodies used at present, will include facilities for drying the clothes of outdoor staff, a new messroom, lavatory accommodation, an oil store, lamp room, and boilerhouse.

MAVITTA DRAFTING MACHINES LIMITED AT B.I.F.—Mavitta Drafting Machines Limited will exhibit at the British Industries Fair a completely new drafting machine range. Known as the Master it will be available as a basic model for horizontal use which can either be fitted directly on to the edge of the board by a quick release clamp or the more orthodox anchor casting which will give a greater coverage. A counter-balance attachment can be fitted to the same model permitting it to be used on vertical boards. Board sizes from 42 in. x 28 in. to 84 in. x 44 in. are within the range of the machine. The design departs entirely from the more orthodox types in general use, in that the linkages are obtained by using endless steel bands passing round pulleys running on ball bearings. A completely redesigned index head is fitted in which automatic location control is by press button; angles are located at every 15 deg. The index plate is graduated to 360 deg. and a vernier is fitted as standard. A quick-release lever

permits free rotation of the index plate. The main pivoting points are fitted with high grade ball-races, and the plain bearings are of the self-lubricating type.

FAN ENGINEERING EQUIPMENT.—A wide range of Tornado fans for industrial purposes to be shown by Keith Blackman Limited at the British Industries Fair will include a No. 10 paddle wheel type fan. This version is available in thirteen different sizes with capacities from 900 cu. ft. per min. to 30,000 cu. ft. per min. Its applications are for moving all kinds of finely divided material and for all types of pneumatic conveying work where low pressure is required. Unit heaters for steam or electric power will also be shown.

SAVINGS BY EMPLOYEES IN NATIONALISED INDUSTRIES.—The National Savings Committee states that at the end of September, 1952, group membership and six months' savings included: National Coal Board 208,168 (£2,931,336); British Railways, including hotels and restaurants, 57,772 (£302,328); nationalised road passenger transport 43,460 (£412,915); London Transport 9,621 (£49,414); British Road Services 8,348 (£69,869); British Electricity Authority 27,977 (£328,649); airways 1,777 (£23,370); and National Dock Labour Board 6,125 (£75,912). On British Railways activity is being displayed in the Eastern Region, where the successful Cambridge Railway Area Savings Commit-

tee was formed in 1945, on the approach of the National Savings Committee to the Chief General Manager of the L.N.E.R., Sir Charles Newton. At that time there were throughout the Cambridge District 31 National Savings Groups; there are now 63. Today only nine stations in the District are without National Savings Groups.

I.T.D. EXHIBITS AT THE BRITISH INDUSTRIES FAIR.—Industrial Truck Development Limited, which is in association with Austin Crompton Parkinson Electrical Vehicles Limited, will be exhibiting a wide range of fork lift trucks and associated materials handling equipment at Castle Bromwich. This will include Stacatrac and Aerolift fork lift truck, Electricar industrial platform trucks, Portapal pallet transporters, a selection of recently designed ancillary equipment, and skips and pallets.

MOBILE CRANES GO BY RAIL.—Some 90 mobile cranes are among the traffic recently secured to rail by the Eastern Region. They weigh 8 tons each, and are loaded singly on special Lowmac wagons (with a runner wagon) in the sender's private siding. Usually the cranes go forward in groups of two or three at a time, and interesting features of the job are that it is not necessary to dismantle the jib for rail conveyance, nor is any special train working required. The cranes, which are being built by K. & L. Steelfounders Limited are for Ministry of Supply depots.

Additional Locomotive Power for the Rhodesia Railways

Thirty more Beyer-Garratt engines of the railways' most powerful type

THE development of the Rhodesia Railways in recent years has been phenomenal. The tonnage carried has almost doubled since 1939, although the route mileage has remained about the same. The major part of this increase commenced in 1947. In "Overseas Railways, 1952," Sir Arthur Griffin, now Chairman of the Rhodesia Railway Board, indicated the extent of the improvements and developments associated with this abnormal growth of a country and its railway. It was obvious that the equipment and facilities could not immediately be increased to keep pace with such exceptional increases in traffic.

The total tonnage hauled during the year 1951-52 showed an increase of 70 per cent over the year 1946-47, and in

net ton miles the increase was over 67 per cent. The total tractive effort of locomotives has increased over the same period by only about 35 per cent and the number of wagons by some 50 per cent. It is clear that there has been efficient use made of the available resources, and, looking into the near future, recent deliveries and commitments made involve increasing the tractive effort of locomotives to no less than 122 per cent over 1946-47 and the number of wagons to 105 per cent.

Increasing Rolling Stock

Since 1947 the number of locomotives in use on the Rhodesia Railways has increased from 211 to 306, the number of wagons from 4,503 to 7,462, while

in process of delivery or on order are some 100 locomotives and 2,400 wagons. The European staff has increased from 4,000 to 7,000 and Africans from 13,000 to 18,000.

These last few years have therefore seen great activity as regards improvements to track, deviations, additional sidings, the housing and training of additional staff, and other associated problems. Major works comprise a £1,000,000 development scheme at Bulawayo, including a new running shed with the most modern equipment, a new marshalling yard and re-routing of lines. The principal deviation being carried out, costing £1,500,000, is the 43-mile stretch of main line between Dett and Wankie, which will ease the ruling gradient from 1 in 61 to 1 in 120, enabling a load increase per train for "15th" class Beyer-Garratt locomotives of 500 short tons.

Centralised traffic control, specially developed by the Siemens and General Electric Railway Signal Co. Ltd., has also been brought into use on the Bulawayo-Gwelo sections, speeding up traffic and saving engine hours. A further section is to be equipped to Gatooma, making 200 miles in all controlled from only two centres, Bulawayo and Gwelo.

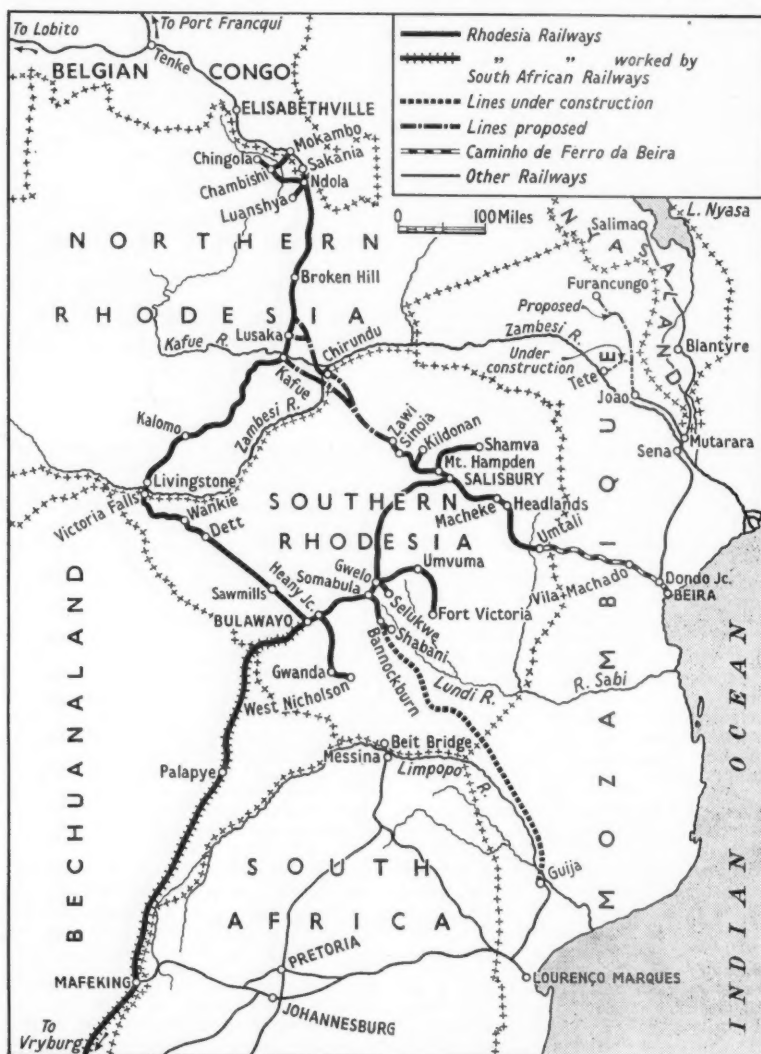
New Construction

A new trunk line is under construction from Bannockburn on the Shabani branch to the Mozambique frontier, a distance of 204 miles. The Portuguese will continue the line to connect with their rail head at Guíja, thus giving a new outlet to Rhodesia over easier gradients to the Indian Ocean through the modern port of Lourenço Marques—a distance from Bulawayo of 675 miles, about the same distance as to the port of Beira.

The cut-off line from Sinoia to Northern Rhodesia, which has been under consideration for some years, is again being surveyed. This would involve roughly 250 miles of new construction in difficult country, but giving an overall reduction of over 500 miles between the great Northern Rhodesian copper-belt and the sea. A huge hydro-electric scheme at Kafue and/or Kariba is associated with this project.

Up to some 15 years ago the main line of the Rhodesia Railways was laid throughout with 60 lb. flat-bottomed rail restricting the axleload to about 13½ tons. Now nearly 1,000 miles have been relaid with 80 lb. track, while the 60 lb. has been considerably strengthened by increased weight of sleepers, number per mile and ballasting.

With single line throughout and with high tonnages of copper and coal to be hauled over immense distances, 1,450 and 885 miles respectively, factors demanding heavy train loads, it became obvious that a type of engine with higher tractive effort than the straight type of



Map of Rhodesia Railways showing connections with adjacent territories and new and projected lines

locomotive was essential. Thus in 1925 the first order for 12 Beyer-Garratt locomotives, designated class "13," was placed with Beyer Peacock & Co. Ltd. These were of the 2-6-2+2-6-2 type, specially designed for the difficult Vila Machado-Umtali section which rises some 3,500 ft. in 143 miles, having a 1 in 50 uncompensated grade with numerous unchecked 5-ch. reverse curves.

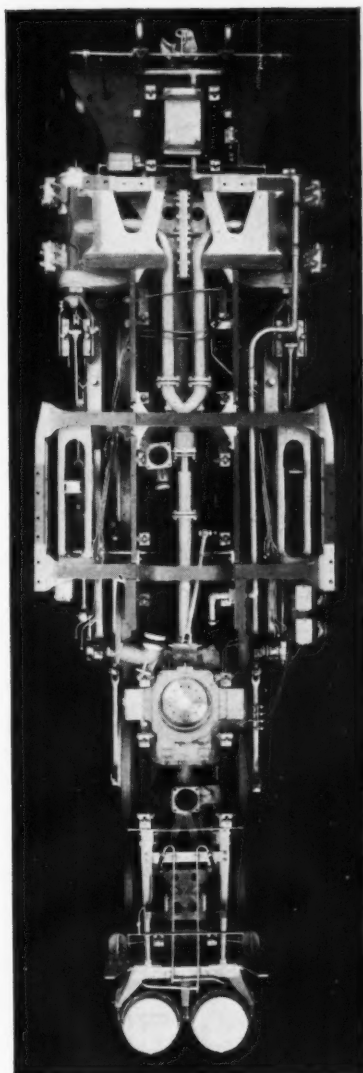
These locomotives quickly proved themselves, and considerably increased the capacity of the line. They were built with plate frames. After two years' experience an order for a further six with bar frames was placed (class "14"), and the following year a further ten. At this time the first eight-coupled Beyer-Garratts (class "16"), eight in number, were introduced for the heavy 170-mile section between Salisbury and Umtali, their success culminating later in a further order for twelve.

The class "16A" locomotives described in this article are a further 30 of a type introduced over 20 years ago, embodying various improvements and modernisation by the railway and the makers. The early Beyer-Garratt locomotives put up remarkable performances, not only as regards haulage, but with high consecutive monthly mileages, often in excess of normal type locomotives with their smaller loads. Their excellent work has resulted in a more or less continuous demand for this type of articulated locomotive by the Rhodesia Railways over 25 years, with the result that over 200 are now in service or on order, and the bulk of the heavy traffic on the main line has long been moved by this powerful and economical type of locomotive.

In 1940 a 4-6-4+4-6-4 general purpose type with a 4 ft. 9 in. wheel was introduced, four being ordered. These engines averaged 6,000 miles a month each, including repairs, in the first six years, despite the comparative low speed of train movement, putting up mileages of over 200,000 to general repairs, and over 100,000 to first tyre turning which only amounted to a truing up of the bogie wheels. Since that date, 74 of this type have been ordered and are in service.

In 1943 nine powerful 2-8-2+2-8-2 type Beyer-Garratts, a standard built specially to the instructions of the War Office, were delivered. These and a number of "14th" class have been sold to the Caminho de Ferro da Beira which took over the 200 miles from Umtali to Beira when the Rhodesia Railways passed from private to State ownership in 1947. This railway has since purchased a further twelve of this type but with a 4-8-2+2-8-4 wheel arrangement and mechanical stokers.

At the present moment, a further 18 of the 2-6-2+2-6-2 type, designated class "14A," modernised as in the case of the "16A" class, are on order, while a further large number of Beyer-Garratt locomotives, the first to be built for the 80 lb. rail, are also being designed and built at Gorton, Manchester. These new locomotives will have a tractive



Overhead view of the front unit with tanks removed

effort of 70,000 lb. at 85 per cent boiler pressure and weigh approximately 225 tons. They will be mechanically fired.

Design of "16A" Class Engines

The majority of the "16A" class locomotives have now been shipped and several are already in service. We understand that the first of these locomotives delivered have been allocated to the northern section, a number being stationed at Broken Hill, working south to Kafue and north to Ndola. The capacity of these locomotives compared with the original type introduced in 1929 and an improved type in 1938 is most marked. The improved riding qualities, free steaming of the boiler against both injectors, improved valve gear, and cab comfort are important features.

The present load fixed for these locomotives on the Kafue-Broken Hill-Ndola section, which has 1 in 80 gradients uncompensated with 660 ft. radius

curves equivalent to a 1 in 64.5 gradient, is at present 1,000 short tons, but it is considered that this can be increased probably to 1,100 short tons or more in due course. This section includes many long stretches of unbroken 1 in 80 with the curvature mentioned.

These new class "16A" locomotives operating on this section are hauling trains previously double headed by eight-coupled tender locomotives, thus saving an engine crew, and conferring other operating advantages.

The locomotives have been modernised and built to the detailed specifications of Mr. F. E. Hough, Chief Mechanical Engineer of the Rhodesia Railways, and the contract has been carried out under the supervision and inspection of the Consulting Engineers of the Rhodesia Railways, Messrs. Freeman Fox and Partners.

Boiler Particulars

Every effort has been made to comply with existing boiler standards on the railway and the boilers of these locomotives have been built interchangeable with those of the recent series of "15th" class locomotives.

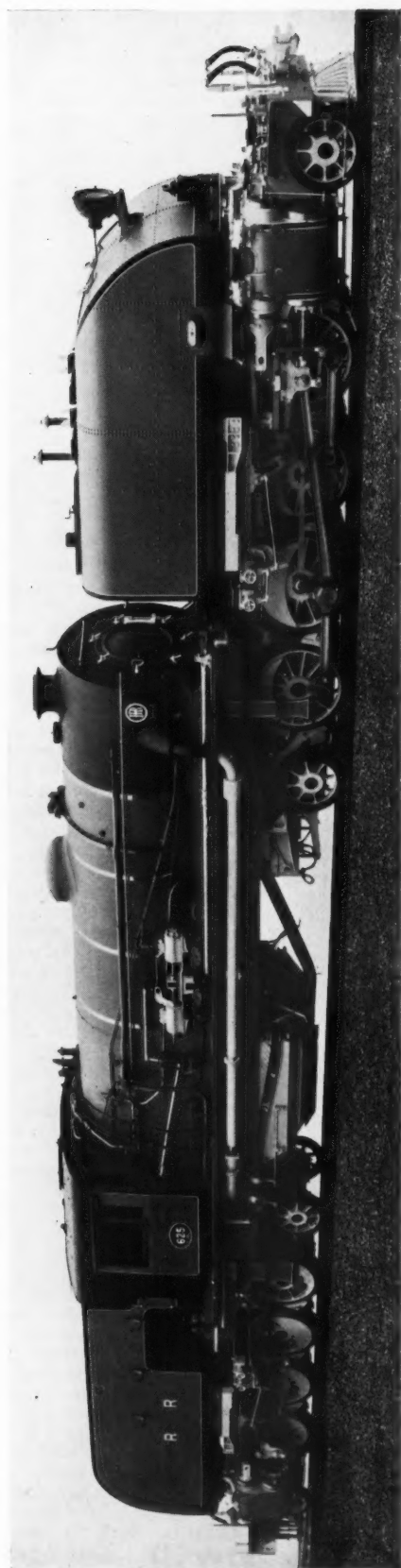
The inner firebox is constructed of Colville's Double Crown quality steel and is welded throughout. There are four 3in. dia. arch tubes and the standard type of brick arch. All boiler tubes are of Aquidiox brand of corrosion-resisting solid drawn steel and are provided with a shoulder adjacent to the water side of the firebox tube plate into which they are expanded, beaded and welded. The superheater, supplied by the Superheater Co. Ltd., has 38 elements and is of the latest type with ball joints and solid drawn steel tubes with integrally forged return bends. There is ample provision for washing out and two Everlasting blow-off cocks operated from the cab are located on the firebox throat plate. The regulator is of the balanced valve type and a Seller's type drifting valve is located on the side of the firebox.

The boiler is fed by two Gresham & Craven self-acting No. 11 injectors with No. 11½ cones, both being arranged on the left hand side of the engine and particular attention has been given to accessibility. Easy control of the injector is ensured by the two quick-acting steam valves and the boiler feed is made through a Gresham & Craven 2 in. combined feed water heater of the Duplex type which incorporates a stop valve and the back pressure valve.

Careful attention has been given to the general smokebox design and the easy sweep of the steam pipes can be seen in an accompanying illustration. The blast pipe carries the combined blower ring and blast pipe top with a nozzle of 5½ in. dia. In the case of these locomotives, Goodfellow tips are not provided. In service conditions a conical type spark arrestor is fitted.

Improvements have been made in the firegrate in which the rocking grate is arranged for manual or steam operation. The hopper type of ashpan is in accordance with modern practice on this

Beyer-Garratt Locomotives for Rhodesia



One of the 2-8-2+2-8-2 locomotives recently completed by Beyer, Peacock & Co. Ltd.

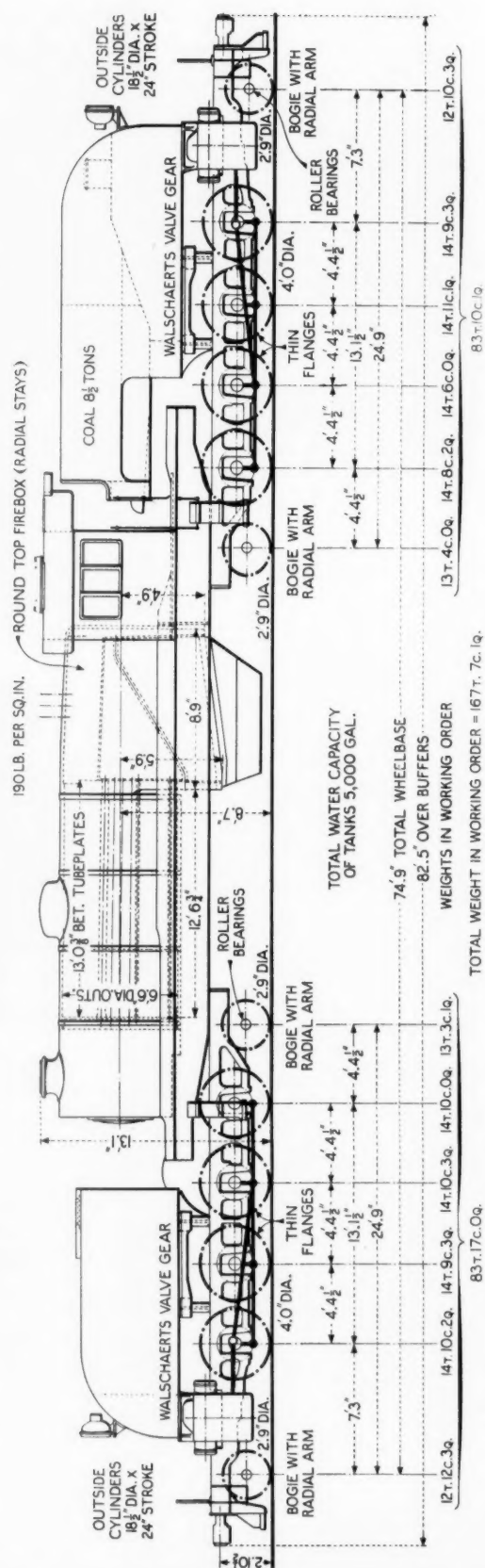
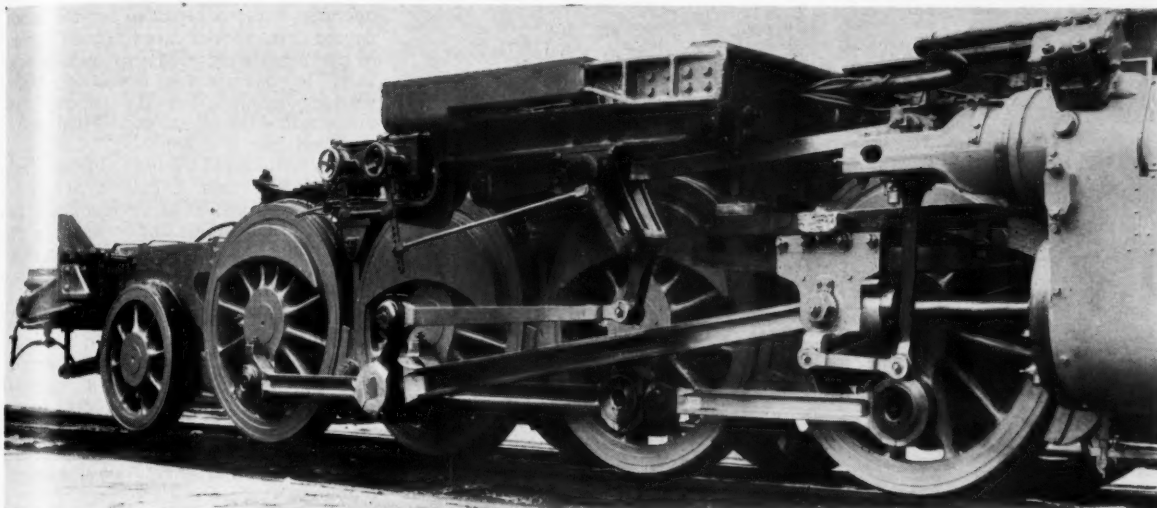


Diagram of principal weights and dimensions



Engine unit showing valve motion arrangement

type of articulated locomotive and is therefore roomy and most accessible from rail level.

Engine Units

The engine unit frames are of the bar type machined from rolled steel slabs to B.S.S. Report 24, Specification 17. The pivot centres, which are cast integrally with the frame stretchers, are of the latest Beyer-Peacock design of self-adjusting oil bath type incorporating spring loaded side bearers. This follows the success which has been obtained with this type of pivot. The pivots are mechanically lubricated.

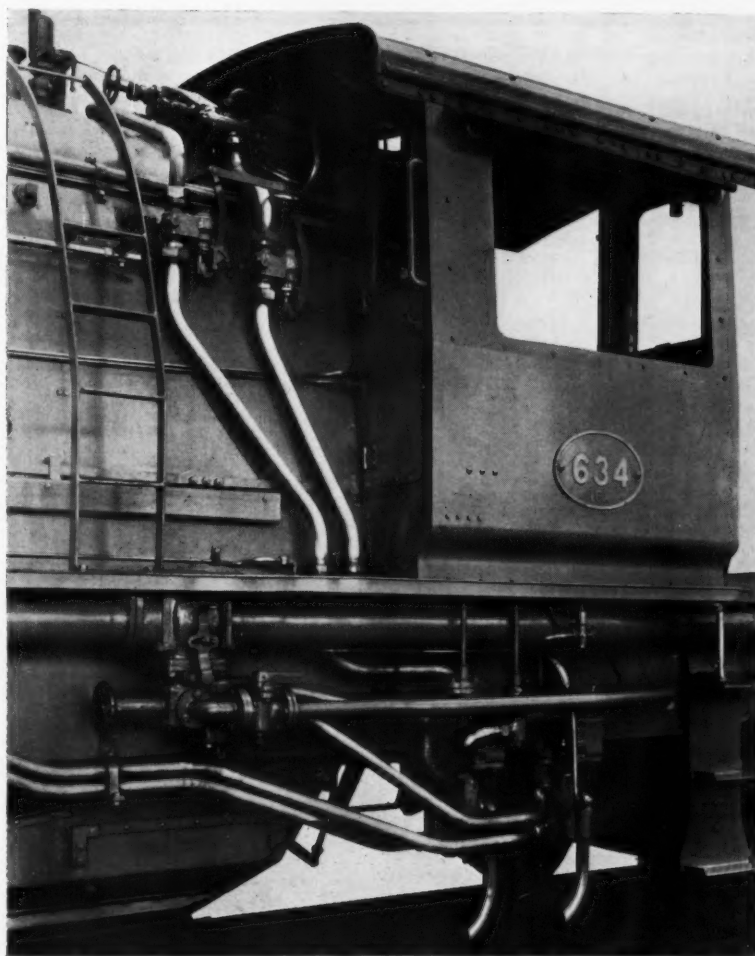
The cylinders are of close-grained cast iron and are fitted with stepped cast-iron liners. Cast-iron piston heads are fitted with three cast-iron rings with dowels to prevent rotation. Piston valves are 9 in. dia. and conform to the standard pattern for the "15th" class engines, provision being made for an increase of the lead to $\frac{1}{2}$ in. without exhaust clearance. The cylinders are provided with Wota by-pass valves with the railway's standard cylinder cocks and relief valves. The cylinder cocks are operated by steam servo motors controlled from the cab and hand operated at ground level.

The piston rod gland packing is of the Paxton-Mitchell type. Cast-steel crossheads are of the Laird type with an integrally cast crosshead arm. Both slide bars and the piston rods are grooved to indicate condemning size. The Walschaerts valve motion is generally similar to that of the "15th" class locomotives with a travel of 6 in., thus permitting free running at speed.

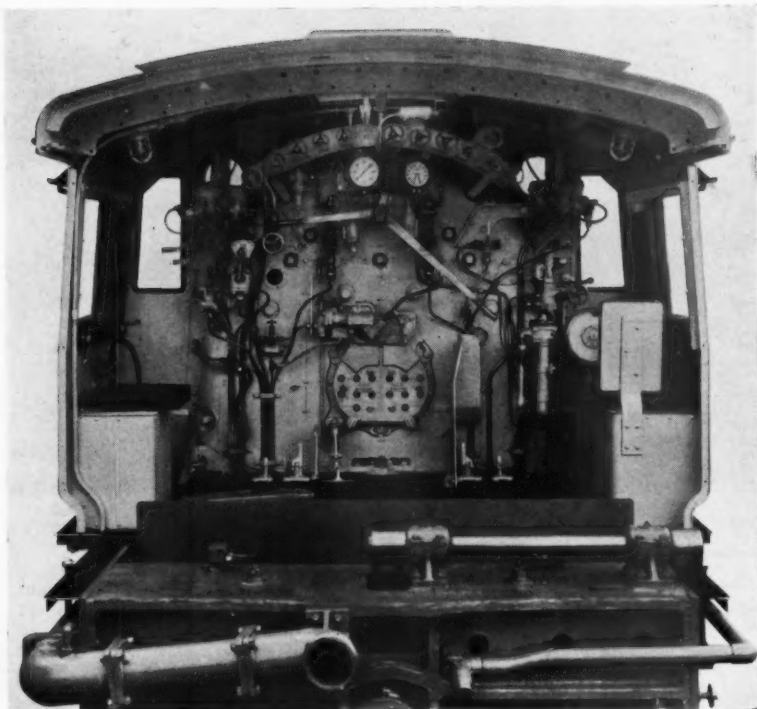
Die blocks are in the lower half of the links on both units for running chimney first. The whole of the motion is grease lubricated with the exception of the slide bars which are arranged for oil lubrication. The reversing link die block is of nickel chrome cast iron and Skefko medium double row self-aligning roller bearings are provided at the return crank end of the eccentric rods.

The connecting and coupling rods are designed for grease lubrication with fixed bushes of nickel chrome cast iron and bronze floating bushes.

The latest form of Hadfield patent power reverse gear is located in an accessible position on the right-hand side of the boiler frame, and is stan-



Arrangement of injectors



The cab, showing arrangement of fittings and controls

dardised with other gears of this type in use on the Rhodesia Railways. Experience has shown that this type of gear gives easy and accurate setting at all times with complete absence of creep.

The coupled wheels and axles are generally in accordance with the "15th" class engines with stepped crank pins and caps of class D steel. The whole of the revolving parts and 26 per cent of the reciprocating parts are balanced to limit the hammer blow to 1 ton at 40 m.p.h. All tyres are of class E steel secured by retaining rings and in the case of the intermediate and driving wheels the tyres have a thin flanged profile.

The coupled axleboxes are designed for Ajax grease lubrication and are cast solid in lead bronze. Coupled wheel hub faces are lubricated by grease. All the main bearing springs are overhung and compensation is arranged in two groups along each side of the locomotive, outer bogie to intermediate coupled wheels, and driving wheels to inner bogie wheels. The Atlas No. 1 S automatic couplers have top operation with 8 in. \times 6 in. shanks and are fitted on each end of the locomotive with Spencer Moulton patent draft gear.

Bogies and Brake Gear

Considerable advance has been made in the design of the bogie details, in particular; the axlebox housing has been arranged to be easily convertible from plain bearings to roller bearings and vice versa. Twenty of the locomotives are fitted with plain bearing axleboxes and ten are fitted with British Timken separate type roller-bearing axleboxes.

The vacuum brake arrangement generally follows the standard practice for this railway with 21 in. cast-iron vacuum cylinders on the front unit, the equipment being supplied by the Vacuum Brake Co. Ltd. The brake is controlled by an SSJ ejector type G with separate type graduable steam brake valve Mark IV supplied by Gresham & Craven Limited. Steam and hand

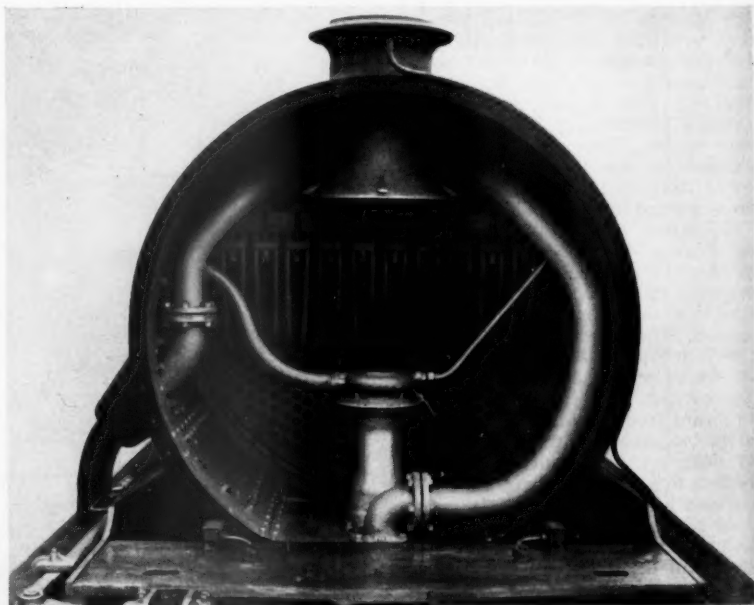
operated brake is provided for the hind engine unit. Special care has been taken in the positioning of the driver's brake valve to provide the easiest possible working position for the driver; the tanks and bunker are of riveted construction.

Two Wakefield 4-feed mechanical lubricators of No. 7 pattern are provided for lubrication of the pivot centres and steam ball joints and in the case of the 20 locomotives with plain bearing bogie axleboxes, two additional lubricators of the same type are fitted. Two 32A British Detroit hydrostatic sight-feed lubricators are located in the cab for the lubrication of cylinder barrels and steam chests. Ajax grease lubrication for motion, spring and brake gear is provided using soft grease, hard grease being applied to the coupled axleboxes, big ends, coupling rods and wheel hubs.

Cab and Accessories

It is possible with this type of locomotive to arrange a roomy and unobstructed cab with a clear and uninterrupted view forward. Cab seats, back rests and arm rests are upholstered in Dunlopillo. The firehole door is of the Ajax steam-operated type D with modified arrangement of air holes and Auld's type L steam reducing valve. The railway's standard type of firehole protector and deflector plates are fitted. Water gauges and other cab fittings and mountings conform to the railway's standard and are generally interchangeable with those of the "15th" class. Tyre watering is provided for the inner bogie and inner coupled tyres on both units. The ejector is placed outside the cab on the right-hand side of the firebox. The steam turrets are also placed outside the cab.

Some alterations have been made in



View of smokebox showing superheater and steampipe layout

the design of the sanding gear, which is of the Lambert wet type supplied by Gresham & Craven Limited, and a new type of master water valve has been introduced. Sandbox filling holes have been designed to avoid the risk of sand falling on working parts. As at present arranged the sanding gear is in operation for the front engine unit only.

Stone's electric lighting equipment includes one 500 W. 32 V. turbo-generator which supplies current for the Tonum E headlights and the various cab fittings, for the illumination of the gauges, lubricators, reversing indicator,

and so on. Three 3 in. Ross pop safety valves are arranged on top of the firebox in front of the steam turret which have been designed to allow a convenient arrangement of controls inside the cab above the back plate. The water gauge protectors have sight plates indicating the minimum safe water level when ascending and descending the maximum gradients. The engines will be numbered 620-649 and are being finished painted on arrival in Rhodesia in the normal colours of black with red buffer beam. The leading dimensions are as follow:—

Cylinders (4), dia. by stroke	...	18½ in. by 24 in.
Coupled wheels, dia.	...	4 ft.
Bogie wheels, dia.	...	2 ft. 9 in.
Axleload	...	14.5 tons
Total wheelbase	...	74 ft. 9 in.
Length over buffers	...	82 ft. 5 in.
Total weight in working order	...	167 tons
Boiler pressure	...	190 lb. per sq. in.
Heating surface—		
Tubes	...	2,131 sq. ft.
Firebox (inc. arch tubes)	...	212 sq. ft.
Total evaporative	...	2,343 sq. ft.
Superheater (inside)	...	481 sq. ft.
Total	...	2,824 sq. ft.
Grate area	...	49.6 sq. ft.
Tractive effort at 75 per cent b.p.	...	48,770 lb.
Tractive effort at 85 per cent b.p.	...	55,270 lb.
Coal capacity	...	8½ tons
Water capacity	...	5,000 gal.

Renovated Steam Stock for Hastings Line, Southern Region

Special stock for restricted tunnel clearance

IMPROVED corridor stock was introduced recently in the steam-hauled trains between Charing Cross and Cannon Street and Hastings via Tunbridge Wells, as recorded in our issue of February 20.

Four types of vehicles are involved: corridor first, corridor composite, corridor third, and corridor third brakes. These were built by the former Southern Railway to a reduced overall width of 8 ft., for tunnel clearance, notably Mountfield Tunnel, on the Tonbridge-

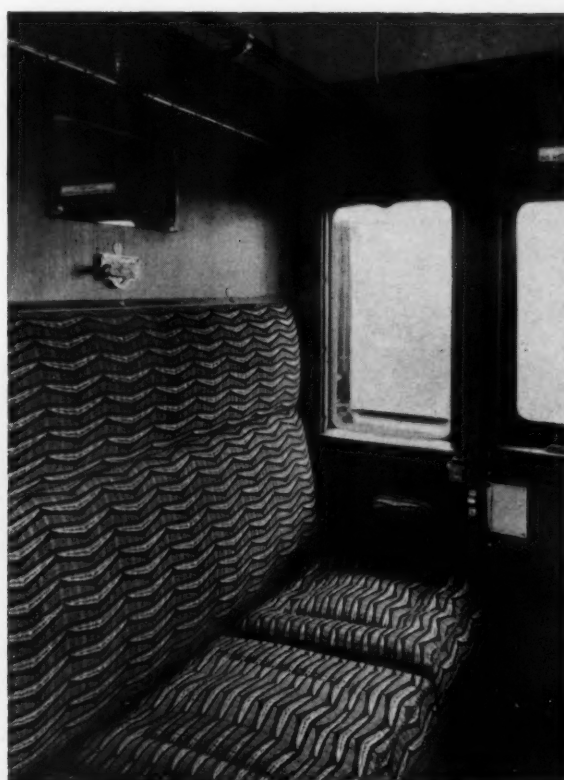
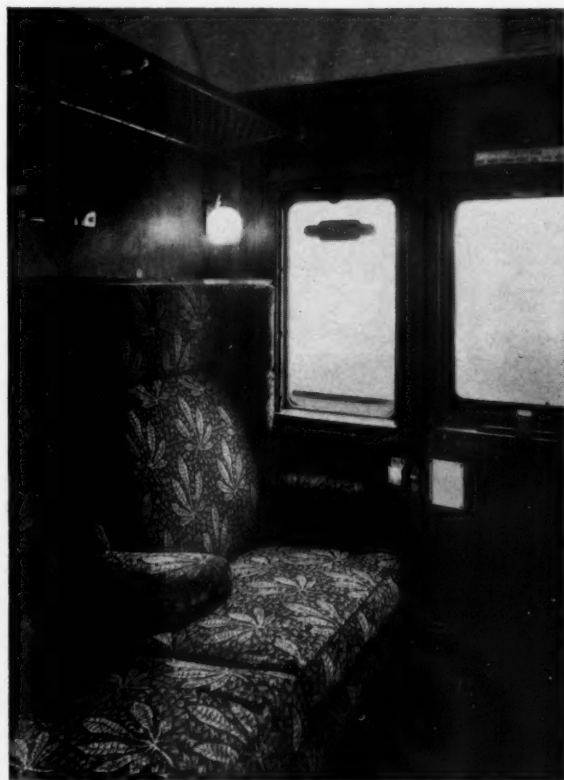
Bopeep Junction (St. Leonards) line. The restricted loading gauge has been a major obstacle to electrification of this line, because of the necessity of building or adapting special stock. Some of the principal trains include Pullman refreshment cars.

The bodies are mounted on steel underframes and the bogies are of the original Southern Region standard design. Bodies are timber framed, the sides and ends sheathed with galvanised steel panels and the roof boarded and

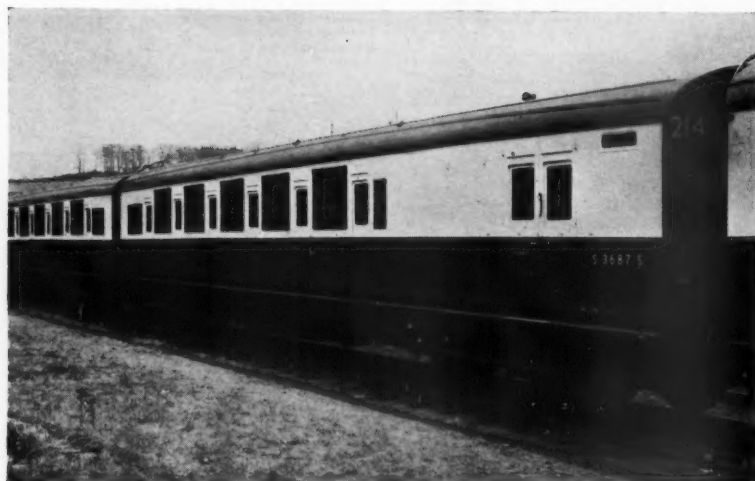
covered with prepared canvas. Vestibules are of the Pullman type arranged in conjunction with the M.C.B. pattern drophead automatic coupler, and similar in principle to the arrangements of buffing and drawgear of British Railways standard coaching stock.

Interior Design

The features of the interior design are in accordance with principles and styles adopted for the most recent British Railways stock.



First and third class interiors, showing flush panelling without map, or picture or advertisement display frames. Restricted width allows only four first and six third class seats per compartment



Reconditioned corridor third brake. The high window lights on corridor side are characteristic of Hastings (S.E.C.R.) line stock built by the Southern Railway

Flush panelling in compartments and corridors has been introduced; the timbers used are walnut for the first class compartments and mahogany for the third. Mirrors are fitted above seats,

but no map, or picture or advertisement display frames.

The ceilings of compartments and corridors are lined with Traffolyte. The upholstery in the first class compart-

ments is in blue leaf pattern moquette and red-grey moquette in the third class.

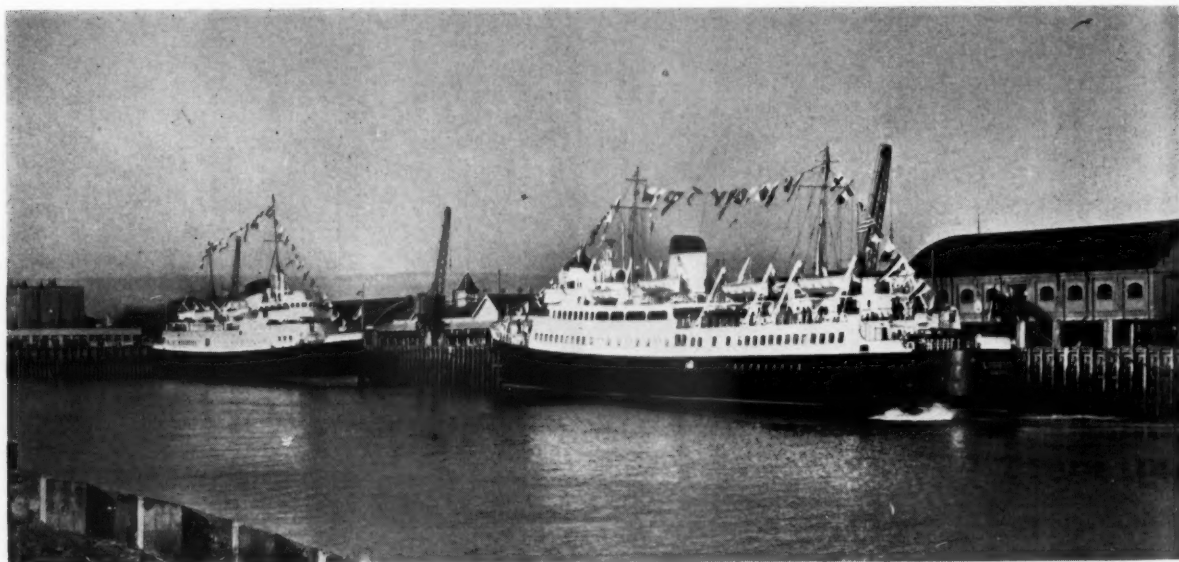
Lavatory floors are formed with synthetic tiles. Walls are finished with primrose Formica panels with horizontal aluminium mouldings and plastic inserts which harmonise with the shade of the Formica. Fittings include a water seal hopper with a pedestal wash-basin with hot and cold water supply, both fittings being in earthenware of a shade to match the Formica.

Metallic furniture throughout the vehicles, locks, commode handles, electric light fittings, parcel racks, and so on, are in silver satin finish. Electric shoulder lamps are fitted in first class compartments, with plastic shades.

The exterior of the vehicles is painted in the standard British Railways main-line stock livery.

The report for 1952 of the Central Transport Consultative Committee for Great Britain records that an *ad hoc* sub-committee reporting on the London-Hastings steam services recommended that the stock of one pair of business trains, which was partly non-corridor, should be replaced by modern corridor stock as soon as possible. The report was discussed in our April 3 issue.

Cross-Channel Ships at Newhaven



In the foreground the new S.N.C.F. steamer "Lisieux" after its maiden voyage from Dieppe on March 24 (see our March 27 issue). The British Railways "Brighton," which also works the Newhaven—Dieppe service, is in the rear

B.T.H. ELECTRICAL PRODUCTS AT CASTLE BROMWICH.—The British Thomson-Houston Co. Ltd. will display B.T.H. products of the latest design for use in all kinds of industry in this country and overseas at the British Industries Fair in Castle Bromwich. Exhibits will range from an 11-kV., 250 MVA., switchgear unit for power station and industrial service, to industrial

electric heaters and fractional horsepower motors, and the recently introduced 16-mm. sound-film projector type 401. Working demonstrations will include switchgear, a new design of alternator with close voltage regulation, Stacrep crane control and electronic motor control, and sectioned motors running under their own power. Representing the range of equipment made by

B.T.H. for electric and diesel-electric locomotives, there will be a scale model of a 400-h.p. diesel-electric shunting locomotive, 18 of which are on order for the Western Australian Government Railways. A new range of d.c. contactors to be shown on the stand is particularly suitable for diesel-electric locomotive contactor panels by reason of its compact design.

RAILWAY NEWS SECTION

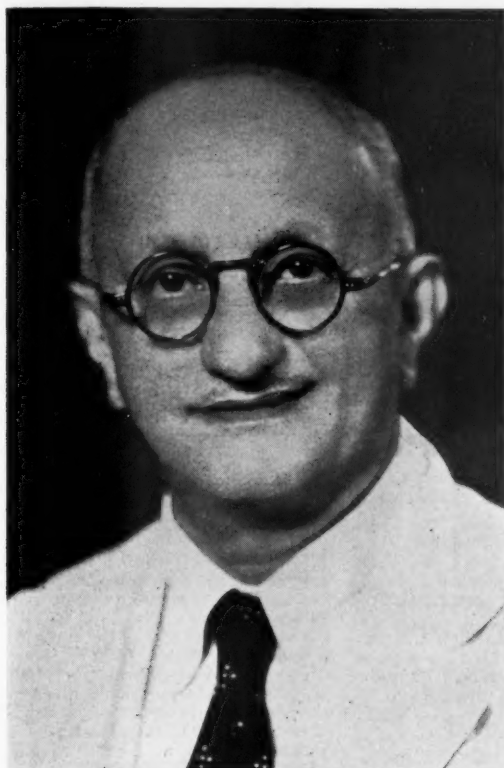
PERSONAL

Mr. K. Sadagopan, Director, Finance (Special Duty), Indian Railway Board, arrived in England on April 2.

Mr. P. K. Sarkar, Financial Adviser & Chief Accounts Officer, Western Railway, India, has been posted as Financial Adviser & Chief Accounts Officer of the Eastern Railway at Calcutta.

period as the General Manager of the same railway. While in the service of the M. & S.M.R. he was responsible for various reforms in the Audit and Accounts Departments, particularly in respect of colliery and workshop cost accounting. In 1932 and 1940 he was awarded the titles of Khan Sahib and Khan Bahadur respectively by the Government in recognition of the meritorious services rendered by him to the Railways in India. After retiring

Mr. Nihal Chand Sabikhi, D.F.H., A.M.I.E.E., Chief Electrical Engineer, Western Railway, Bombay, was born in 1899 and was educated in the Government High School, Pasrur, District Sialkot, and at Murray College, Sialkot in the Punjab. In 1920 he proceeded to England for higher technical education. He took the Faraday House diploma in mechanical and electrical engineering in 1925. On his return to India early in 1926 Mr. Sabikhi



Mr. J. D. Bhote
Appointed Agent & General Manager,
Barsi Light Railway



Mr. Nihal Chand Sabikhi
Chief Electrical Engineer,
Western Railway, India

Mr. J. D. Bhote, who has been appointed Agent and General Manager, Barsi Light Railway, was born on December 21, 1893, and, on completing his college education, joined the service of the Madras & Southern Mahratta Railway (now the Southern Railway) early in 1912 as Probationary Inspector of Accounts. After passing the various railway audit and accounts examinations, Mr. Bhote successively held the posts of Accountant, Head Accountant, and Superintendent of Statistics. In December, 1931, he entered the senior scale, and thereafter worked in various capacities and was deputed on different kinds of special work both in the Audit and other departments of the railway. Early in 1941 Mr. Bhote was promoted to the Junior Administrative Charge as Deputy Chief Auditor, and eventually became the Financial Adviser & Chief Accounts Officer of that railway. He retired from this post on April, 1949, after putting in a total service of nearly 37 years. Before retiring, Mr. Bhote also acted for a short

from the Government Railway he joined the services of the Barsi Light Railway Company as Chief Auditor in August, 1949, and acted as the company's Agent & General Manager in 1951. Mr. Bhote has now been appointed permanently to the post of Agent & General Manager.

Mr. A. C. Muir, Controller of Stores, Rhodesia Railways, retired on February 18 after 31 years' service.

Mr. F. A. Benger, Assistant Chief of Motive Power & Rolling Stock, Canadian Pacific Railway, has been appointed Chief of Motive Power & Rolling Stock in succession to Mr. W. A. Newman, whose death was recorded in our March 13 issue.

Mr. L. A. Reynolds, Engineer for Special Works, and Mr. J. R. Rewell, Assistant to Chief Traffic Manager, both of the Victorian Railways, have been visiting railway installations in Britain.

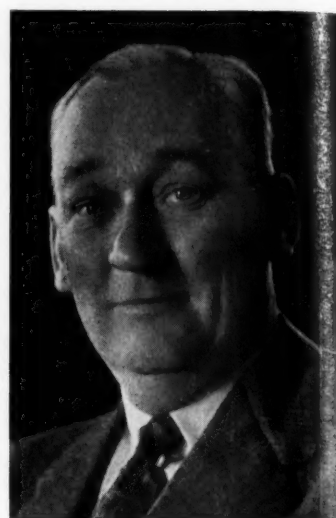
joined the Electrical Department of the B.B. & C.I. Railway (now the Western Railway) which had just started construction work in connection with the Bombay Suburban Electrification. He was appointed as a Special Grade Chargeman and was in due course promoted through various technical supervisory posts of the Electric Traction Branch until he was appointed in the Superior Railway Service as Assistant Electrical Engineer in 1931. After working in the Traction Division for some time he was appointed as Personal Assistant to the Chief Electrical Engineer in the Administrative office in 1935. He officiated as Divisional Electrical Engineer from 1943 to 1947, being in charge of the Traction, Electrical (Locomotive) and Power Divisions at various periods until he was confirmed in 1948. He was promoted to Chief Electrical Engineer in December, 1949. Mr. Sabikhi is an Associate Member of the Institution of Electrical Engineers, his election having taken place in 1938.



The late Mr. H. M. Proud
President of the Institution of Railway Signal
Engineers, 1937



Mr. W. J. Lardner
Appointed Stores Superintendent,
East African Railways & Harbours



Mr. H. Lowles
Stores Superintendent,
East African Railways & Harbours, 1948-1953

We regret to record the death on March 30 of Mr. H. M. Proud, Chief Commercial Engineer, Westinghouse Brake & Signal Co. Ltd. from 1932 to 1946 and President of the Institution of Railway Signal Engineers, 1937. Mr. Proud, who served an apprenticeship to the Scientific Appliance Company, later was a sub-station attendant on the London United Tramways and Central London Railway. He was one of a group of young electrical engineers recruited for the electrical portion of the installation work occasioned by the re-signalling of the District Railway and the signalling of the tube railways then under construction. In 1914 he joined the McKenzie, Holland & Westinghouse Power Signal Co. Ltd. in charge of estimating and construction. In 1916 he was appointed Signal Engineer to that company, and, in 1932, became Chief Commercial Engineer to the Westinghouse Brake & Signal Co. Ltd.

Mr. Proud was made a Member of Council of the Institution of Railway Signal Engineers in 1920. He was also a member of the Three-Position Signalling Committee (1922), and was a Life Member of the Permanent Way Institution. His funeral took place on April 2 at Woking Crematorium.

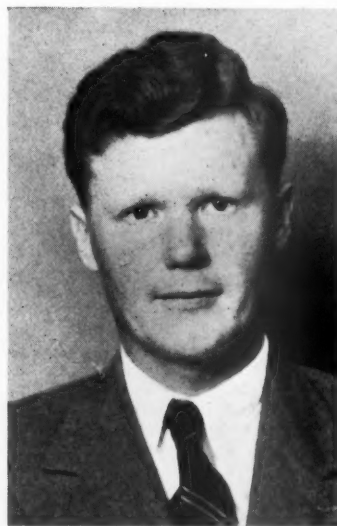
Mr. W. J. Lardner, who has been appointed Stores Superintendent, East African Railways & Harbours, was until recently Stores Superintendent of the Nigerian Railway. Mr. Lardner spent the early years of his railway career at the Dukenfield Works of the London & North-Eastern Railway, and in 1932 he was transferred to the Stores Department Engineering Stores, Ipswich. On the opening of the new stores depot at Gidea Park immediately previous to the outbreak of war in 1939, Mr. Lardner was placed in charge of

all "war damage" equipment including A.R.P. and fire-fighting materials for the eastern division of the southern area L.N.E.R. In January, 1942, he joined the Nigerian Railway as Assistant Storekeeper in charge of locomotive stores, and subsequently took over control of the general stores sections. He was promoted to Senior Storekeeper in April, 1943, and to Stores Superintendent in July, 1946.

Mr. H. Lowles, who has relinquished the post of Stores Superintendent, East African Railways & Harbours, after more than 30 years of service in East Africa, joined the Midland Railway at Derby in 1914 and served in the Army from 1918 to 1919, being commissioned in the Sherwood Foresters. He rejoined the Midland Railway in 1919, but went out to Tanganyika in December, 1922, on appointment as Sub-Storekeeper with the Tanganyika Railways.



Mr. L. L. Brown
Appointed District Traffic Superintendent,
East African Railways & Harbours



Mr. R. H. Leadbeater
Appointed District Engineer, East African
Railways & Harbours



Mr. T. F. Bell
Appointed District Accountant,
East African Railways & Harbours

In 1936, he was promoted to the post of Storekeeper and in July, 1939, he was seconded to the King's African Rifles to develop and take charge of their stores organisation. In October, 1939, he was appointed Deputy Assistant Director of Ordnance Services, and in 1942 he was promoted to Chief Ordnance Officer, East African Army Ordnance Corps, with the rank of Lieutenant-Colonel. Recalled to the railway service in November, 1943, Mr. Lowles was appointed Chief Storekeeper, Tanganyika Railways, in 1944, and two years later transferred to the Kenya & Uganda Railways & Harbours as Stores Superintendent. On the formation of the East African Railways & Harbours in May, 1948, Mr. Lowles became Stores Superintendent of the combined system.

Mr. L. L. Brown, who has been promoted to District Traffic Superintendent, East African Railways & Harbours, was educated at the Royal Masonic School, Bushey, and the Sorbonne. Mr. Brown joined the Southern Railway as a Traffic Pupil in 1931, and, after serving in various posts, transferred to the Kenya & Uganda Railways & Harbours in May, 1938. In 1948 he was promoted to Assistant Traffic Superintendent. Mr. Brown is at present in charge of Nakuru traffic district.

Mr. R. H. Leadbeater, B.Sc., A.M.I.C.E., who, as recorded in our February 6 issue, has been promoted to District Engineer, East African Railways & Harbours, obtained his Civil Engineering degree at the University of South Africa, Durban, in 1943, and worked in the Durban Civil Engineering Drawing Office of the Admiralty from 1944 to 1945. He was appointed as Assistant Engineer with the Railway Administration in East Africa in 1945 and subsequently became District Engineer, Dodoma, Tanganyika.

Mr. T. F. Bell, Senior Accountant, East African Railways & Harbours, who has been appointed District Accountant, Dar es Salaam, joined the Accounts Department of the Kenya & Uganda Railways & Harbours as a junior clerk in 1929. After progressing through the various clerical grades, he was promoted to Assistant Accountant in 1949 and Senior Accountant in 1951.

Mr. W. L. Henderson, A.M.I.E.E., has joined the staff of Dowding & Mills Limited as London Sales Manager.

Mr. F. H. Beasant, B.Sc. (Hons.), M.I.E.E., M.I.Mech.E., is leaving Crompton Parkinson Limited to join the board of the Anti-Attrition group of companies.

Mr. Bertram White, Technical Director, Federation of British Industries, has resigned as from March 31, 1953, to take up an industrial appointment. Dr. J. E. G. Harris, D.Sc. Lond., B.A. Cantab., will succeed him temporarily as Acting Technical Director. Dr. Harris had a long association with Imperial Chemical Industries Ltd., from whose service he has now retired.

The Renold & Coventry Chain Co. Ltd. announces that Mr. O. Bertoya has been appointed Managing Director of the company in succession to Mr. R. O. Herford, who has retired from the executive. Mr. W. S. C. Tully has been appointed Deputy Managing Director and is succeeded as Secretary by Mr. J. S. Harrower. Mr. W. V. Foley has been appointed General

Sales Manager in succession to Mr. Bertoya. Mr. E. J. Parish will shortly retire and will be succeeded as General Works Manager by Mr. L. J. Tolley. Mr. Herford and Mr. Parish retain their directorships of the company.

Mr. T. Austin has been elected President of the Institution of Railway Signal Engineers for 1953.

Mr. Frank Foster, M.Sc., A.M.I.E.E., has been appointed General Manager of the "Cyc-Arc" Stud Welding Division, Crompton Parkinson Limited.

Mr. A. D. N. Jones, Barrister-at-Law (at present an Assistant Secretary), has been appointed to be Secretary of Turner & Newall Limited as from April 1, 1953.

Mr. John L. Collins, who has been Secretary and Legal Adviser of Turner & Newall Limited since 1934, is retiring from the position of Secretary, but retains the position of Legal Adviser.

Mr. H. Redmond has been appointed Joint Managing Director of Seddon Diesel Vehicles Limited and the following have joined the Board:—Mr. E. Sayer, Mr. R. E. Keeble, and Mr. R. B. Wharton.

Mr. John W. Schoen has been appointed Vice President & General Sales Manager of R. G. Le Tourneau Inc., Peoria, Illinois.

Mr. R. D. G. Ryder has been elected President of the Machine Tool Trades Association for 1953-54. Mr. H. P. Potts has been elected Vice-President, and Mr. G. E. Hickman, Honorary Treasurer.

Mr. James J. Reynolds, who had been a member of the National Labour Relations Board from 1946 to 1951, has been appointed Vice President in charge of Industrial Relations for the American Locomotive Company.

Mr. Norman Readman has been appointed Managing Director, Consolidated Pneumatic Tool Co. Ltd., in succession to Mr. J. A. Owen, who is resigning after completing 50 years of uninterrupted service with the Company. Mr. Owen will continue as a Director and Technical Consultant.

Mr. Albert Parkinson, M.B.E., Chairman and Joint Managing Director, Crompton Parkinson Limited, has resigned from the latter position. He has occupied this post since the formation of the company in 1927 by the amalgamation of F. & A. Parkinson Limited with Crompton & Co. Ltd. Mr. Parkinson will remain Chairman of the company.

Mr. J. T. Holman and Mr. N. P. Holman, Directors of Holman Brothers, have been appointed to the Board of Climax Rock Drill & Engineering Works, a subsidiary. Mr. A. S. Grant and Mr. J. Gilchrist have resigned their directorships, but Mr. Gilchrist continues as Secretary. Mr. R. Ewing has relinquished the position of Managing Director of the company but remains Chairman. Mr. P. M. Holman, who joined the board of Climax Rock Drill last year, is now Managing Director.

Mr. J. T. Rymer has been appointed Managing Director of Sentinel (Shrewsbury) Limited. Until resigning recently he was Managing Director of Mirreles, Bickerton & Day Limited, and also a Director of Associated British Oil Engines

Limited, National Gas & Oil Engines Limited, Associated British Oil Engines Marine Limited, and Brush Bagnall Traction Limited. Before joining the late Mr. A. P. Good's group of companies in 1947, Mr. Rymer was Director of Blackstone & Co. Ltd., and also of R. A. Lister (Marine Sales) Limited.

Associated Electrical Industries Limited

The annual general meeting of Associated Electrical Industries Limited was held in London on March 31, Sir George E. Bailey, Chairman of the company, presiding.

The Chairman, in the course of his speech, said that as a result of increased turnover the profit before tax had increased by nearly £2m. to £9.9m. They had, however, to provide £7.2m. in taxation which was £1.8m. more than in 1952, largely due to the incidence of the Excess Profits Levy, which amounted to just over £1m. The stockholders were, in fact, left with only £178,000 of the £2m. increase in profit. This was indeed, he suggested, sacrificing efficiency on the altar of taxation.

Last year he mentioned that the board's conservative dividend policy was due to the calls made on the company's financial resources by the heavy burden of taxation, the high cost of capital replacements, the increase in value of work in progress and the necessity of providing the extensions required to meet the ever-expanding demand for our products. These conditions still applied, and the board regretted that it was unable to recommend an increase in the rate of dividend.

Reviewing the year's activities, the Chairman said that orders for traction equipment were well maintained. A notable B.T.H. order was for 104 control equipments for motorcoaches for the Toronto Subway. Metropolitan-Vickers obtained an order for 20 motorcoach sets for the South African Railways.

To secure export orders for large capital projects was no longer a question solely of offering first-class equipment at competitive prices and delivery dates; success or failure depended more and more on the ability of the manufacturer to negotiate long-term finance. Their financial resources did not permit them to bear the full burden of financing capital schemes of this kind. If they were to continue to secure their share of the export market they must expect the finance to be arranged mainly by the City of London and the Government.

There was every indication that we were entering a period when conditions would once again be highly competitive. During the years of inflation, success had depended very largely on maintaining production in the face of shortages of all kinds. Often more expensive materials and methods of manufacture had to be adopted to overcome them. As the material supply position improved, costs were again of prime importance, and future prosperity would depend on being able to manufacture at least as cheaply as competitors both at home and abroad. They had every confidence that their design and manufacturing staffs would be equal to the tasks.

The report and accounts were adopted.

MALDON-WOODHAM FERRERS FREIGHT SERVICE WITHDRAWN.—On and from April 1, freight tram services have been withdrawn from Barons Lane and Cold Norton stations on the Maldon-Woodham Ferrers branch.

Parliamentary Notes**Transport Bill in House of Commons***Consideration of House of Lords amendments postponed until after Budget debate*

On consideration of the Transport Bill by the House of Commons on March 31, Mr. Alan Lennox-Boyd (Minister of Transport) moved that the Lords' amendments to the bill be considered.

Mr. Herbert Morrison (Deputy Leader of the Opposition) moved an amendment designed to secure that the amendments be considered "upon this day three months." He said the Bill had its Third Reading in the Lords as late as Thursday (March 26) and the amendments were not received in the Vote Office until Friday morning. The House was counted out early on Friday and did not sit on Monday, so that it was impossible for the Opposition to make proper preparations.

His misgivings whether the Minister had had time to study the amendments were rebutted by Mr. Lennox-Boyd, who said many were "old friends."

Mr. Harry Crookshank (Leader of the House) said that when he announced business on Thursday no representations were made by anybody in the House.

Later, he pointed out that the number of amendments and their quality could not have been unknown to Members who were following the Bill. They were not all passed on the last day. Some Members had attended the sittings of the Lords and were well aware of what was going on and of the kind of amendments which the Commons would eventually be asked to consider.

Labour Objection to "Hurry"

Mr. Aneurin Bevan (Ebbw Vale—Lab.) in the course of further debate said that usually the Lords' amendments to any measures were taken on the motion of the Government without opposition. The relationship between the House of Commons and the House of Lords in the Constitution assumed that there must always be a decent period between debate in the two Houses so that both could consider what the other had said.

In many parts of Britain, he added, groups of organised workers had suggested taking industrial action to oppose the Bill. Labour members had always discountenanced that suggestion, saying the House of Commons was the place where differences should be fought out. What would workers say when they learned that their livelihood and their prospects were being determined by decisions of the House of Lords without the House of Commons having any adequate opportunity of debating them? What was the hurry?

Liberals in Favour of Postponement

Mr. Clement Davies (Montgomery—L.) said that everyone was anxious that the Bill should be as perfect as it could be made. Seventy amendments had been made in the Lords, and it was only right that the House should consider them, and have the time in which to do it. If it was a good Bill it would be as good after Easter as before.

When the debate was resumed after discussion of other matters, Mr. Crookshank said that the inevitable disarrangement of business on March 25 and 31, because of the death of Queen Mary, had led the Government to assume that, in circumstances that were quite outside their

control, they would receive some co-operation from the Opposition. Two prayers had been put down by the Opposition which had led the Government to think that business on the Lords' amendments would not be unduly prolonged.

There could be no question of postponing the Lords amendments for three months, but the Government proposed to take them in the week after the Budget debate.

Debate on Amendments Postponed

Mr. Morrison said he accepted Mr. Crookshank's proposal, and asked leave to withdraw the amendment on the understanding that the Minister would withdraw the original motion.

The amendment was, by leave, withdrawn.

Mr. Lennox-Boyd asked leave to withdraw the original motion, and the motion was, by leave, withdrawn.

Steel Bill Second Reading in Lords

The Marquess of Salisbury (Lord President of the Council) on March 31 moved the second reading of the Iron & Steel Bill. He said violent fluctuations between unrestricted private enterprise and totalitarian socialism were not likely to be an advantage either to the industry or the country. The Government recognised that fact and they were not proposing in the Bill to return the industry to unrestricted private enterprise. They had tried to find some middle course.

The Government, he added, was determined to get satisfactory prices for the assets to be sold. If satisfactory offers were not forthcoming the securities would not be sold.

The Bill would not satisfy doctrinaire extremists, but they were not characteristic of the nation, which wanted the largest measure of individual liberty compatible with the needs of the community. That was what this Bill sought to provide.

Members of the Board

Viscount Bruce of Melbourne said the Government should reconsider the decision to appoint a certain number of full-time members to the Board. Unless the appointments were part-time the Government would not get the great figures on the management side of the industry to serve, nor would the trade unions be best represented by an official who had severed his connection with his union to accept a full-time appointment.

Independent Iron Founders

Lord Jessel said that the independent iron founders saw no reason why they should ever have been included in the Bill and put under the supervision of the Board. The tied foundries had been excluded from the Bill but the independent foundries had not. That was illogical.

Lord Hawke said he hoped that no big attempt would be made to sell the poorer assets, because the Bill gave permission for them to be leased. This might be the best way of ensuring that obsolescent plants would be kept in operation as long as necessary before new plant came into operation.

Earl Jowitt said the Board was a mere facade, and if it was not to be given more power it might as well be cut out of the Bill. The Opposition would move amendments to strengthen it. At present it appeared that the Iron & Steel Federation would run the industry. If the industry was to be efficient the Government must have power to control its development.

Viscount Swinton (Secretary of State for Commonwealth Relations) said there was agreement about the need for effective public supervision. The real issue was whether nationalisation was necessary to get on efficient industry.

Foundries used the same materials as those used by heavy steel makers and used them in large quantities. That was the argument for bringing them under a measure of supervision, but the Bill recognised the special position of those firms.

The Bill was read a Second Time.

Railway Electrification in U.K.

Mr. Gurney Braithwaite (Parliamentary Secretary, Ministry of Transport) said in answer to a question on March 16 that he understood from the B.T.C. that after the Manchester-Sheffield-Wath scheme, which it was hoped would be fully completed in 1955, the electrification scheme next in priority was the L.T.S. line.

Railway Freight Rates

In reply to a question on March 23, Mr. Alan Lennox-Boyd, Minister of Transport, said the average increase in railway freight rates since January, 1946, had been 97 per cent, and the price of coal to the railways had risen by 60 per cent since January, 1946, and by 275 per cent since 1939.

Freight Charges and Coal Prices

Mr. Winston Churchill, asked on March 26 what steps he proposed to check the interaction of the price and cost of carriage of coal, said that coal represented only about one-tenth of railway operating costs. The upward trend of prices could only be reversed by the level of productivity being raised in coal, as in other industries. The Government was doing its best, with the aid and through the joint efforts of the National Coal Board and the National Union of Mineworkers, to bring about such developments.

Questions in Parliament**Transport, Fuel & Power Co-ordination**

Mr. Frank Beswick (Uxbridge—Lab.) on March 26 asked the Prime Minister, in view of the fact that the Secretary of State for the Co-ordination of Transport, Fuel & Power was not a member of the House of Commons, to whom questions on the co-ordination of those matters should be addressed.

Mr. Winston Churchill, in a written answer, stated: As I informed the House on May 12 last year, I will answer questions on matters which cannot conveniently be answered by the Departmental Ministers concerned.

B.T.C. Charges Scheme Before Tribunal

Hearing of objectors begins

Hearings by the Transport Tribunal of the B.T.C. application for its Passenger Charges Scheme, 1953, were resumed on March 31. In further examination Mr. J. E. M. Roberts, Executive Officer (Rates & Charges), the Railway Executive, refuted a suggestion that London travellers were having to pay more for transport fares than in any other urban centre in the country. Rail suburban services to other urban centres were completely different in density and nature from those round London. Asked whether the charges for a day return fare were lower in the provinces than in London, Mr. Roberts replied that all he could say was that travellers were paying a different price for a different article.

This concluded the case for the Transport Commission application.

The hearing of objectors was then begun. For the Post Office Engineering Union it was maintained that very nearly half the early morning ticket users would pay 2d. a day extra, and many would pay 3d. or 4d. extra. It was suggested that if any increase had to be made, a more equitable treatment for early morning ticket users would obtain if there were no increase for journeys up to three miles, and a penny increase for four miles and over.

On behalf of the objection by the Middlesex County Council, the view was expressed that although the prices of some commodities used in public transport were still rising, there had been a marked downward trend in others. There was a clear indication that not only had the rise become modified, but in certain main groups of commodities, a definite pause was being experienced for the first time since the war.

Equalisation of Charges

In further evidence for the Middlesex County Council on April 1, Mr. S. W. Hill said he did not think that the equalisation of maintenance charges was good in theory, under the Commission's present financial arrangements.

The theoretical justification was to level up the charge for maintenance over the years, and he thought it was right to have regard also to the depreciation provision. In the accounts of the British Transport Commission, depreciation was provided for on the "straight line" method; thus an asset was deemed to have 12 years of life, and a twelfth of it was written off each year. The combination of the "straight line" depreciation method and the equalised maintenance charge was really to have the effect of putting on a greater charge in the early years than against the later years.

The result could be that London would be indirectly subsidising the finances of the Commission as a whole, and never enjoying, in return, any "come-back" of that money. If there was a separate provision account for London, and the amount London had contributed in the past to the equalisation of maintenance were put aside and became available to be put back when maintenance charges were above average, then justice would be done over the years.

In cross-examination by Mr. Harold Willis, Q.C. (for the British Transport Commission), Mr. Hill agreed that it was not in the interests of the London passenger that he should be asked to pay less than the proper amount. He was sure the British Transport Commission was only putting this application forward because it considered it essential, in order to safe-

guard its financial position. In this matter he thought the Commission was mistaken in some respects.

The Tribunal adjourned until April 14.

Inauguration of Irish Section of Institute of Transport

The inaugural meeting of the Irish Section of the Institute of Transport was held at Dublin in the Hall of the Institution of Civil Engineers of Ireland on March 12, when Mr. T. C. Courtney, Chairman of Coras Iompair Eireann, the Founder Chairman of the Section, presided. Mr. C. T. Brunner, President of the Institute, who was accompanied by Mr. F. W. Crews, Secretary of the Institute, gave the opening address.

Mr. Brunner, in welcoming the formation of the new Section, expressed appreciation of the work of those who had been responsible for it and discussed the progress and the value of the Institute's work and its possibilities in Ireland. The second part of the President's address consisted of an examination of the place of transport in the economy of the Republic of Ireland. A vote of thanks to the President was proposed by Mr. G. B. Howden (General Manager of C.I.E. and a Vice-Chairman of the Section) and seconded by Professor W. H. Prendergast (University of Galway).

New Italian "Elettrotreni"

Designs for the improved version of the high-speed electric train sets known as *elettrotreni*, most of them built by Societa Italiana Ernesto Breda for the Italian State Railways, were completed in 1947, but trials of the first completed unit began only last November.

The existing eighteen *elettrotreni* streamline sets built by Breda, dating from 1939, comprise three bodies mounted on four bogies. Six motors give a total power per hour of 1,100 kW. The demand for accommodation usually has necessitated coupling two units to form a six-car train seating 192 passengers in all, to whom meals can be served from kitchens in either three-car unit, which also contains a bar. There is no through gangway connection between the two units when coupled together.

Observation Compartments

The new seven-car trains comprise four passenger coaches seating 160 passengers, five in each of 32 small lounge compartments, or *salottini*; in addition six seats are provided in either of two observation-smoking compartments at the ends of the train set, situated forward of and at a lower level than the driving compartments. A restaurant car seats 48. The remaining two vehicles are for baggage and service purposes. Besides the restaurant car there is a bar and a newspaper and tobacco booth. An advantage of the new design is the economy in manpower realised by one seven-car train compared with two three-car sets, especially in catering staff.

The power of the seven-car set is understood to be about the same as that of two of the three-car sets coupled together. The maximum speed is to be somewhat lower, as it is not thought necessary that

the speed should exceed the 124 m.p.h. attained in 1939 by the existing design.

Pending the placing in service of the second of these sets, the one now in service runs thrice weekly in either direction between Milan, Florence, Rome and Naples. Southbound it leaves Milan at 10 a.m., and Rome at 4.30 p.m., arriving at Naples at 6.50; northbound, Naples is left at 9.5 a.m. and Rome at 11.25, with arrival at Milan at 6 p.m. Southbound the 525 miles is covered in 8 hr. 50 min., northbound in 8 hr. 55 min.

The original order placed in 1947 comprised eight of the new train sets; it was later reduced to two, though that number is considered insufficient for maintaining the services envisaged daily between Milan and Naples. The second set is expected to be ready by May 17, when the summer service begins, after which both sets will work regularly, providing a daily service.

Road Vehicle Ferry Terminal at Dover

One of two sections of the new road vehicle ferry terminal of the Dover Harbour Board was opened at Easter, and both will be in operation by July 4. The sections are in the north-east extremity of the harbour, and give full driving on and off facilities for private cars, motor-coaches, double-deck buses, and other road vehicles. All ferryboats conveying road vehicles, except the Dover-Dunkirk train ferries, will use the new terminal, with stern loading. They include British Railways s.s. *Lord Warden* and *Dinard* to and from Boulogne, the Belgian Marine s.s. *Princesse Josephine Charlotte* to and from Ostend, and the Townsend Ferries' *Halladale*.

The terminal was planned by the Dover Harbour Board; work was begun in October, 1951, and the total cost is some £750,000. It includes a car park and marshalling space; a large Customs and immigration shed in which vehicles are dealt with in individual bays arranged herringbone fashion; a petrol filling station; and a reception building for passengers, with restaurant, waiting rooms, and money-changing and similar facilities. Vehicles need not reverse at any time.

The two hinged loading bridges are 140 ft. long with an arc of 35 ft. to allow both for a tide range of nearly 19 ft. and for changes in the level of the ship's car deck due to loading. The full capacity of the terminal is some 240 vehicles an hour, 120 in either direction.

WESTBURY LINE BRIDGE RECONSTRUCTION, W.R.—Reconstruction of bridges in the Western Region has necessitated revision of schedules of principal expresses from Paddington to the West of England via Newbury for the period April 7 to May 11 inclusive, and from the West of England to Paddington from April 13 to May 21 inclusive. Arrival times at destinations are approximately 20 min. later than shown in the public timetable. On Sundays, April 26 and May 3, this section of line will be completely closed and the following trains diverted to alternative routes: 10.30 a.m. Paddington to Penzance; 3.30 p.m. and 5 p.m. Paddington to Plymouth; 9.45 a.m. Penzance to Paddington; and 10.10 a.m. Plymouth to Paddington. On Sunday, May 3, the 2.40 p.m. Paignton to Paddington will also be diverted.

London Transport Coronation Arrangements

Special early and late rail and road services

Lord Latham, Chairman of the London Transport Executive, outlined recently the main details of the arrangements made by the Executive to handle the Coronation traffic. He said that London Transport traffic experts had been working them out for months. Plans were now well towards completion. It had been no light task to provide for an entirely different pattern of travel, especially on Coronation Day and also, if less so, during the rest of Coronation Week, when at the same time ordinary services to meet the needs of regular passengers had to be maintained. Elaborate special early and late services for Coronation Day and Coronation Week, with entirely different traffic flows, peak times and objectives from normal had to be provided. Special rail services had to be co-ordinated with special road services. Special maps and other ways of letting travellers know the facilities available had been designed.

On the eve of Coronation Day, June 1, bus services and Underground railways serving the Coronation Area would be kept running, with frequent services, until 1.30 a.m. This would provide good facilities for those who wished to come up overnight and take their places on the route. The usual all-night bus and trolleybus services would be augmented to run at 15 min. intervals; some all-night bus services would be re-routed to skirt the Coronation Area.

Coronation Day Trains

On the morning of Coronation Day, trains on all lines (except the Metropolitan beyond Rickmansworth and the Northern City Line) would begin running at 3 a.m., some 2½ hr. earlier than normal. These extra early trains would serve 160 main London Transport stations throughout the area, particulars of which would be made widely known in advance. The early services, apart from carrying ordinary spectators, would bring up the large numbers of police who would be on duty. The remaining London Transport stations would be open by 5 a.m., and from 6 a.m. onward and throughout Coronation Day all lines will be running a frequent service of full length trains at 2 to 2½ min. intervals.

The heaviest period of travel up to the Coronation Area was expected to be between 6 and 9.30 a.m., but they were catering both for the main rush of spectators and for those who come up overnight and very early in the morning. It would be necessary, in accordance with police requirements for traffic control, to close four stations near the route—Bond Street, Hyde Park Corner, Trafalgar Square, and Westminster—until after the Coronation Procession had passed. To enable the heavy flow of traffic to be handled, there would be restrictions on the use of six other heavily used stations—Marble Arch, Green Park, Piccadilly Circus, Strand, Charing Cross, and Holborn (Kingsway); four of them would be available for the exit but not for the entrance of travellers and certain of them would be used by travellers coming from one direction only. Piccadilly and Marble Arch would be open from early morning but in accordance with police requirements they will be closed from 9 a.m. until after the Procession.

Special services would bring 18,000 schoolchildren to the Embankment, and

there would also be some special train journeys run from High Street Kensington and Mansion House to convey members of both Houses of Parliament and their friends to Westminster. All road services coming into the inner central area would have to be curtailed or diverted.

Bus Services to Railheads

So that the maximum number of spectators could benefit from the special railway services, extra early buses would run on routes serving important suburban railway points. These would give spectators extra early Coronation Morning bus services to such stations as: Watford, Harrow-on-the-Hill, Edgware, Golders Green, Finsbury Park, Wood Green, Manor House, Leyton, Leytonstone, Gants Hill, Romford, Gravesend, Eltham, Redhill, East and West Croydon, Morden, Leatherhead, Richmond, Kingston, Surbiton, Hounslow East and Ealing Broadway.

After the return Procession had passed, bus and rail services would be increased for the homegoing crowds and heavy services would continue during the rest of the day. It was expected that large crowds would remain in the West End, and that others would come up specially to see the illuminations, street decorations and the fireworks on Coronation Evening. Frequent evening services would cater for them. Buses and trains would be extended

to give West End departures up to 1.30 a.m. The special late trains would call at all stations and there would be late connecting buses from many suburban stations.

London Transport would be publishing, in conjunction with the Metropolitan Police, 2,000,000 free copies of special *How-To-Get-There* guide-maps to the Coronation Route and Area. The map would be in eight colours and show the route, the Coronation Area, and bus and coach Coronation termini. Railway stations would be marked to indicate restrictions in their use. It would also contain much other information, including complete lists of bus routes serving the Coronation Area, lists of stations opening early, restricted stations, and instructions for the use of private cars. It was hoped that, by using these maps, which would be available at London Transport stations and Metropolitan Police stations from the end of April, spectators would be able to arrange their journeys to their chosen point with ease and convenience. In addition, all bus routes to the Coronation Area and all railways stations would display local information about starting times and other particulars well in advance.

The entrances to London Transport stations on and near the Processional Route would be decorated with flowers which would remain throughout the summer. Station canopies would also be decorated and bus stop signs on the route would bear loyal greetings. Extra buses and full-length trains would run on the Sunday before the Coronation, and throughout Coronation Week extra road and rail services would run up to 1.30 a.m.

Bombay Railway Signal & Telecommunications Society

One-day meeting of visits and discussion

A special one-day meeting of the Bombay Railway Signal & Telecommunications Society was held recently when over 60 members of the Society assembled at Bombay Central Station to visit signalling installations of particular interest on the suburban section of the Western Railway. The electro-pneumatic power signalling installation at Bombay Central and the all-electric installation at Bandra were visited, also the new power-operated lifting barrier gates at Santa Cruz.

At this station there is a busy level crossing with the road leading to the main airport of Bombay. Until December, 1951, it was provided with the usual type of heavy wooden gates for road traffic and side wicket gates for pedestrians. The gates were interlocked with the signals in the usual manner and opened and closed by hand. It was found that during a spell of duty the time taken to open and close the gates increased towards the end of the shift due to fatigue, as many operations had to be carried out every hour. These gates have now been replaced by lifting barriers operated by electric motors under the control of the gatemen.

The barrier gate consists of a steel pole operating in a vertical direction through an angle of 90 deg. It is counterweighted at the pivot point and has fringes attached to it to prevent animals and children passing underneath when down. It is controlled independently by an electric slide control nearby which is electrically interlocked

with the signal box so that no signal can be "cleared" for a train unless the barrier is down and locked in position. Warning to road traffic that barriers are about to be lowered is given by loud-ringing electric bells at each side of the crossing and twin signals which show a red light alternately. A timing device is included in the installation to ensure that warning to road users is exhibited for a period of 15 sec. before the gatemen can lower the barriers. The Western Railway was the first in India to adopt power-worked barrier gates.

Talk on Australasian Practice

In the afternoon over 80 members assembled in the conference hall of Electric House (the Bombay electric supply & tramways undertaking). Mr. H. C. Towers took the chair at this meeting and introduced Mr. L. C. Mohindra, Assistant Deputy Controller of Standardisation, Railway Board, who gave a talk on his recent visit to Australia and New Zealand. Mr. Mohindra emphasised in his address how the high level of wages in those countries had led to everything possible being done towards mechanisation and reduction in the labour required for working an installation. The talk was followed by a lively discussion.

The Bombay Railway Signal & Telecommunications Society, which is the first of its kind in the country, is nearly three years' old and has a membership of over 200 drawn chiefly from the Central and Western Railways.

Treatment of Boiler Feedwater

Railway mechanical engineers have for many years given much thought to the efficient treatment of boiler feedwater with a view to the more intensive use of steam locomotives, and improved boiler performance. Scale deposits reduce the rate of heat transfer. Furthermore, efficient water treatment increases the mileage between boiler washouts, with a resultant decrease in running shed attention.

A comprehensive study of the treatment of boiler feedwater, and cooling water for internal combustion engines is contained in a book entitled "Water Treatment," recently reprinted by Houseman & Thompson Limited, D.M. House, Newcastle-on-Tyne, 2, price 15s., which deals extensively with scale deposits, pitting and corrosion and their analyses, together with the analyses of the various types of water which cause them. It sets out in concise form the loss of fuel caused by scale formation and the losses by the continuous use of the blow-down in graph form.

Graphic wastage and pitting in the cooling system of internal combustion engines are also dealt with. The publication is liberally illustrated with photographs of typical examples of pitting and corrosion. Translations of technical terms relating to boilers are given in nine languages. The author reminds us that it is only in the last decade that any real knowledge on the subject has been appreciated by the average boilerman and as the book was first published eight years ago, this fact should be borne in mind. It was written for the average engineer in charge of low-pressure plant.

German Federal Railways Deficit

The working receipts of the (Western) German Federal Railways for 1952 are expected to total D.M. 5,210,000,000, some 10 per cent more than for 1951. Against this must be set the rise, still in progress, of wages and salaries and of the prices of materials. This development is shown by the figures below.

Item	D.M. million		Increase per cent. over 1951
	1951	1952	
Wages	2,969	3,385	14.0
Coal	405	490	20.9
Other	314	360	14.7
	3,688	4,235	14.8
Maintenance of track and rolling stock, etc.	1,037	1,180	14.0
Total	4,725	5,415	14.6

In contrast with the balance between receipts and expenditure reached in 1951, the excess of expenditure over receipts at the end of 1952 will, therefore, be seen to be about D.M. 200,000,000.

Passenger Traffic Trends

A considerable part of the travelling public, notably the professional class, was reported by the Spring of 1952 to be abandoning the railway in favour of travel by motorcycle and pedal cycle, though a tendency to revert to train travel became apparent last November. On the other hand, because of a shortage of coaching stock it was at times impossible to satisfy the demand for special trains, particularly

during the peak tourist season. As the result of intensive propaganda, tourist agencies were able to book and convey on their organised tours by special trains about 50 per cent more passengers than in 1951.

Wagon Supply

Some 18,000,000 wagons were made available for freight traffic in 1952, about the same as for the preceding year. The demand for covered wagons continued to drop faster than in 1951, and more covered wagons had to be kept in reserve as surplus. A slight shortage of open wagons developed in connection with the autumn agricultural and wine traffics. Wagon turnround was further reduced in 1952; the average was 4.2 days, with four days as the shortest recorded turnround.

The number of scheduled goods trains in service on weekdays averaged 12,700; the number of goods train-miles rose by 4 per cent, and the average length of run of freight trains by 2 per cent over 1951. The weight and payload of freight trains declined by some 6 per cent, whilst the commercial speed rose slightly. The Federal Railways point out that this decline in productivity was inevitable in view of the necessity to satisfy the demand of quick transport of goods.

Contracts & Tenders

The Southern Pacific Railroad has placed an order for 500 gondola wagons with the American Car & Foundry Company, to be built at its Berwick, Pennsylvania, plant. The wagons, delivery of which is expected to begin during the third quarter of this year, will be of 70-ton capacity each.

British Railways, London Midland Region, have placed the following contracts:—

Fletcher & Co. (Contractors) Ltd., Mansfield. Reconstruction of bridge No. 3 carrying road A.50 over the railway at Coalville on the Charnwood Forest line.

E. R. Dyer Limited, Manchester. Repairs and reglazing of the roof of the tranship shed at Ardwick East depot, Manchester.

Leonard Fairclough Limited, London, S.W.1. Drainage and clay-digging on down line between 157 miles 880 yards and 158 miles 440 yards, and stabilisation of the cutting slope on the up side 157 miles 1,387 yards, Quainton Road-Carlvet. Formation renewal and stabilisation of cutting slope at Verney Junction between 9 miles 1,300 yards and 10 miles 470 yards on Bletchley-Oxford line.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, reports that the United Kingdom Trade Commissioner at Delhi has notified a call for tenders issued by the Directorate General of Supplies & Disposals, Government of India for:—

- (a) 100,000 m.s. cotters for c.i. oval pots for 82 lb. bullhead.
- (b) 440 drawbar cradles

Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on (a) April 21; (b) April 22. A copy of the tender documents is available for inspection at the Board of Trade. A further copy is available on loan in order of application. Reference CRE/11937/53 for (a) and for (b) CRE/12199/53 should be quoted.

The Special Register Information Service of the Board of Trade, Commercial Relations & Exports Department, reports that the United Kingdom Trade Commissioner at Delhi has notified calls for tenders by the Directorate General of Supplies & Disposals, Government of India, for the supply of:

- (a) 1 frame, lever, 1935 type, of 31 levers.
- (b) 10—1 in 12 crossing 60 lb. R.F.F.B.S.S. (m.g.), complete with all fittings.
- 12 sets 18-ft. over-riding switches (m.g.)
- 60 lb. R.F.F.B.S.S., complete with all fittings.
- 90 sets 13 ft. 6 in. over-riding switches (m.g.)
- 60 lb. R.F.F.B.S.S., complete with all fittings.
- (c) 500 cwt. bolts and nuts, fish, 3½ in. by ½ in., without washers.
- (d) 100,000 gibs for C.I. pot sleepers for 82 lb. b.h. rails.
- (e) 500 plunger buffer long 13 in. dia. with spindle and plug.
- (f) 4,300 coupling screw standard complete (b.g.)

Tenders should reach the Director General of Supplies & Disposals, Shahjahan Road, New Delhi, by 10 a.m. on the following dates: (a) April 15; (b) April 16; (c) April 16; (d) April 20; (e) April 22; (f) April 24. A copy of each of the tender documents is available for inspection at the Board of Trade. A further copy is available on loan in order of application. The following references should be quoted. (a) CRE/11727/53; (b) CRE/11669/53; (c) CRE/11636/53; (d) CRE/11728/53; (e) CRE/11822/53; (f) CRE/11711/53.

WICKMAN MOBILE DEMONSTRATION UNIT.—The Wickman mobile demonstration unit will again tour industrial areas in Great Britain during the coming year. This follows the successful tour which took place during 1952, when the unit made 83 calls at users' works and demonstrated reseriving technique to more than 3,368 operatives, and 17 lectures were given to 906 personnel. In addition to practical instruction in reseriving carbide tools, the personnel accompanying the unit will arrange lectures when required, which will be supported by 16-mm. sound films and film strips covering reseriving and application. Applications should be addressed to any Wickman branch office, or to Wickman Limited, Wilmet Division, Torrington Avenue, Coventry.

ALUMINIUM WELDING DEMONSTRATIONS.—The welding of aluminium alloys by the latest production techniques is the subject of a series of demonstrations being arranged by the Northern Aluminium Co. Ltd., at various centres throughout the country. At each the welding of aluminium by the shielded inert gas metal arc and the argon tungsten arc processes are demonstrated, followed by two films, "Aircomatic Welding" and "The Study of Arcs in Sigma Welding." Recent demonstrations were on March 25 at the Government Training Centre, Bilton Way, Ordnance Road, Enfield Highway, Middlesex; and on April 1 at the Southampton Technical College, St. Mary's Street, Southampton. Arrangements are being made to hold subsequent demonstrations at Bristol, Cardiff, Birmingham, Liverpool, Manchester, Leeds, Sheffield, Newcastle, and Glasgow within the next few months. Invitations are being sent to individuals known to be particularly interested. Others who wish to attend are, however, invited to contact the Northern Aluminium Company's Sales Development Division, Banbury, Oxon.

Notes and News

Vacancy with the Crown Agents for the Colonies.—Applications are invited for the post of leading draughtsman required by the Crown Agents for the Colonies for its London office. See Official Notices on page 439.

Deputy Traffic Manager Required.—Applications are invited for the post of deputy traffic manager, under 55 years of age, required by an industrial firm in the Midlands. Railway experience of rates, charges and wagon control essential. See Official Notices on page 439.

Vacancy for Traction Division Sales Manager.—Crompton Parkinson Limited invite applications for the post of traction division sales manager, to be located at Chelmsford. Applicants must be qualified electric traction engineers, preferably with some experience of electric railway equipment. See Official Notices on page 439.

Transportation Club.—The annual general meeting of the Transportation Club was held at 44, Wilton Crescent, London, S.W.1, on Tuesday, March 31. Mr. G. S. Szlumper, Chairman of the club, presided and reported a considerable improvement during the past year in the financial results. Despite a bad start to the year, an overall surplus of £335 had been achieved and this, coupled with generous donations which, during the year amounted to no less than £1,441, had resulted in a credit of £1,776, which had reduced the accumulated deficit of £1,112. During the year, the Minister of Transport had accepted the Presidency of the club. He expressed the gratitude of the Council and members

to Colonel K. R. N. Speir, the Hon. Secretary and the staff, for the hard work that had been put into the club during the year and which contributed so largely to the improved results.

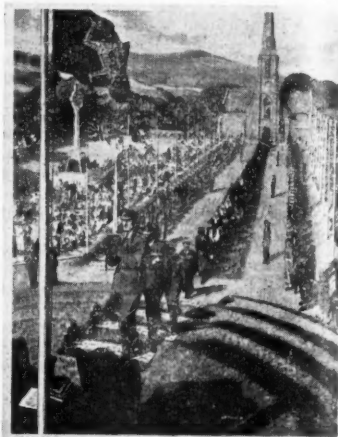
R.O.D. Officers Dinner.—The R.O.D. Officers Dinner will be held on Friday, May 1, at the Transportation Club, 44, Wilton Crescent, London, S.W.1, at 6.30 for 7 p.m. Sir Michael Barrington-Ward will preside.

Robert Stephenson & Hawthorns Limited.—For 1952 the directors recommend a dividend of 10 per cent and bonus of 3 per cent (similar payments were made for 1951). Net profit, after charging taxation of £83,500 (£109,500), amounted to £50,152 (£82,147). Appropriation to reserve is £25,000 (against £55,000), and the carry-forward is increased from £20,148 to £24,531.

Institution of Locomotive Engineers: Summer Meeting in Lancashire.—Provisional arrangements have now been made for the Summer Meeting of the Institution of Locomotive Engineers in Lancashire, which will take place from May 6 to May 8. The meeting commences at the Vulcan Foundry, Newton-le-Willows, about 1 p.m., where members and their guests will be entertained by the directors of the Vulcan Foundry to a buffet lunch. In the afternoon there will be a tour of the works. The next day the party will visit the Dick Kerr Works of the English Electric Co. Ltd., at Preston, and after luncheon, as guests of the directors of the English Electric Co. Ltd., a visit will be made to Salmesbury Airfield for a demonstration of Canberra jet aircraft. In the

evening the Institution Dinner will be held at the Prince of Wales Hotel, Southport. On Friday, May 8, there will be a visit to the Prescott Works of British Insulated Callender's Cables Limited. Members will be entertained to luncheon by the directors of British Insulated Callender's Cables Limited, and the meeting terminates after luncheon.

New London Midland Region Posters.—The poster portraying the Tynwald ceremony in the Isle of Man which is repro-



ISLE OF MAN

Tynwald Hill takes its name from the 12th century Tynwald, the oldest assembly hall in the world. On this historic ground each year early in July, are promulgated the laws which have been enacted by the Island's Parliament during the previous calendar year.

GUIDE PRICE
PUBLICITY DEPARTMENT
ISLE OF MAN

TRAIN AND STEAMER SERVICES
AND FARES FROM STATION
OFFICES AND AGENCIES

Victorian Railways Officer at Stratford



Mr. J. R. Rewell (in foreground), Assistant to Chief Traffic Manager, Victorian Railways, inspecting booking office equipment at Stratford, Eastern Region, during his recent visit to Great Britain

duced herewith is one of five recently produced by the London Midland Region. Others feature Bangor (Northern Ireland), Fleetwood, New Brighton, and camping coaches.

Locomotive & Carriage Institution of Great Britain & Eire.—On Thursday, April 23, a paper will be given before the Locomotive & Carriage Institution of Great Britain & Eire on "Gas Turbine Locomotives" by Mr. A. W. J. Dymond, Assistant to the Mechanical & Electrical Engineer, Western Region, Swindon, in the Railway Clearing House Board Room, 163, Eversholt Street, London, N.1, at 7 p.m.

Model Railway Club Exhibition.—Whatever views may be held about current standards of craftsmanship in some departments of activity, there can be no doubt of its flourishing condition in that of model engineering. This year's Model Railway Club Exhibition, which is open at the Central Hall, Westminster, S.W.1, until 9.30 p.m. tomorrow, shows many examples of skill and accuracy in reproducing in miniature prototypes selected from a long period of railway history. Locomotives and rolling stock of the last century make some of the most attractive models, such as the L.S.W.R. Adams "T6" 4-4-0 and three-coach set by P. W. Bush, and D. Ferry's L.N.W.R. "Precedent" 2-4-0 and train. An unusual prototype—an Ivatt steam railcar of the G.N.R.—has been chosen by G. B. Read. A more recent victim of the scrap heap, and one rarely modelled, is W. Branwell's G. C. "Black Pig" 4-6-0. Working layouts include one of "treble O" gauge, and a 4-mm. scale reproduction of a section of single-track

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

DEPUTY TRAFFIC MANAGER required by large industrial firm in the Midlands; good prospects. Railway experience of rates, charges and wagon control essential. Knowledge of shipping and road transport also desirable. Contributory Superannuation Scheme in operation. Applicants should be under 55 years of age. Applications stating age, details of previous experience and salary required to Box 803, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

REQUIRED by the Central Railway of Peru two Locomotive Assistants preferably single and between 26/30. Qualifications: Full apprenticeship with British Railways or Locomotive Builders and experience in one or more of the following: Railway Machine Tool Operation. Welding Boiler works, Locomotive Running or Drawing Office. Also two fully trained Steam Locomotive Engineers aged between 30/45. Experience preferably in South America with locomotive running or locomotive workshops in supervisory positions. A.M.I.Mech.E., desirable and knowledge of Spanish essential. Apply SECRETARY, PERUVIAN CORPORATION LTD., 144, Leadenhall Street, London, E.C.3.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with international traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

main line in the Isle of Man. The British Railways model layout, with its representative main-line and suburban passenger trains, numerous types of goods rolling stock, and both semaphore and colour-light signalling, is also in operation. Some fine coloured postcards of the old railway companies, exhibited by the Railway Club, recall a once popular method of publicity.

"Starlight Special" Bookings.—British Railways announced on April 8 that over 20,000 advance bookings had already been made for the "Starlight Special" cut-fare period excursions from London to Glasgow and Edinburgh, and vice versa. For the inaugural journeys tonight (April 10) alone, over 1,100 seats had by then been booked in four trains.

L.M.R. Mutual Improvement Class Competition.—In the London Midland Regional final of the Mutual Improvement Class quiz competition, held at Euston House on March 25, Derby motive power depot was the winner and thus qualified for the inter-regional final, the prize for which is a free trip to the Continent. The other finalists were Willesden and Mirfield.

British Railways, Western Region, London Lecture & Debating Society.—On Friday, April 24, at 5.45 p.m. at the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, W.2, a debate has been arranged with the Federation of Railway Lecture and Debating Societies, North Eastern Area, on "That Nationalisation Tends to Develop the Mediocre Rather than the Outstanding Railwayman." Mr. R. Burgoyne, Regional Staff Officer, Western Region, Paddington, will be in the chair.

Third New B.R. Clyde Steamer Launched.—The motor vessel *Maid of Skelmorlie*, for British Railways Clyde services, was launched on April 2 at the yard of A. & J. Inglis Limited, Glasgow, by Mrs. T. F. Cameron, wife of the Chief Regional Officer, Scottish Region. The vessel is similar in design to the *Maid of Ashton* and *Maid of Argyll*, launched on February 17 and March 4 respectively, each having

CROWN AGENTS FOR THE COLONIES
LEADING DRAUGHTSMAN REQUIRED FOR THE LONDON OFFICE. Salary £570 × £20 to £670 × £5 to £675 a year. Pay Addition to basic salary payable at the rate of 10% on first £500 and 5% on remainder. Extra Duty Allowance of 8% on annual basic salary plus Pay Addition also payable at present. Engagement will be on unestablished terms, terminable by one month's notice from either side, with the prospect, after satisfactory service, of appointment to the established and pensionable staff, vacancies permitting, and promotion to more senior grades if suitably qualified. The normal working week is 45½ hours and Extra Duty Allowance is paid for hours worked in excess of 42. *Qualifications.* Candidates should have been apprentices in carriage and wagon building at one of the Works of British Railways or of a Contractor. They should have had experience in designing detail parts of carriages and wagons and must be good draughtsmen. A knowledge of locomotive construction would be an advantage. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting on letter M.2909.B. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

THE GAS-TURBINE LOCOMOTIVE. A technical description of the gas-turbine recently constructed by the Metropolitan-Vickers Electrical Co. Ltd. for the Western Region, British Railways. Subjects dealt with include body construction, bogies, traction motors, prime mover, generators and auxiliary equipment. A folding plate drawing of the locomotive is included together with illustrations and diagrams. Reprinted from *The Railway Gazette*, February 1, 1952. Price 5s. Post free 5s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

accommodation for 650 passengers. The principal dimensions are:—length, overall, 165 ft.; breadth, moulded, 28 ft.; depth, moulded, 10 ft.; and displacement, 420 tons. Those present at the launching ceremony included:—Sir Ian Bolton, Member, British Transport Commission; Mr. G. T. Nicholson, Member, the Railway Executive; Mr. J. L. Harrington, Chief Officer (Marine) and Mr. J. Ness, Chief Officer (New Works), the Railway Executive; Mr. T. F. Cameron, Chief Regional Officer and Mr. T. H. Moffat, Deputy Chief Regional Officer, Scottish Region; Provost W. Kerr, Millport; and the following Directors of A. & J. Inglis, Limited: Sir John Craig, (Chairman); Mr. P. Gifford, Mr. J. R. Lee and Mr. W. S. Milne (Managing Director). After the launching ceremony, Mr. T. F. Cameron said that the ship was the third of the four new passenger vessels building for the Clyde services. The last one was expected to be launched in the next four or five weeks. The four would be followed by three general-purpose ships in the Clyde service.

British Iron and Steel Research Association Summer Conference.—A conference on heat treatment practice is to be held by the British Iron and Steel Research Association at Ashorne Hill, Leamington Spa, on June 15, 16 and 17. It is intended that there shall be papers and discussion on the heat treatment of engineering steels and large forgings and sections, surface treatments, isothermal heat treatment, and temperature measurement and control. The conference, which is being organised by the Metallurgy (General) Division of B.I.S.R.A., is expected to provide a meeting ground for engineers and steelmakers affected by these problems.

British Railways Easter Period Traffic.—Although holiday traffic was considerably affected by bad weather, British Railways ran over 2,000 relief trains for passenger travel during the Easter holiday period, in addition to 205 football excursions. During the three busiest days of the holiday, 432,234 passengers were carried in 1,362 long-distance trains from the London

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N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

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termini alone. During the eight days ended 6 a.m. on April 7, British Railways cleared 2,858,620 tons of deep-mined and opencast coal; the weekend carryings (6 a.m. Saturday to 6 a.m. Tuesday) were 361,930 tons. During the week ended March 28, 208,573 tons of iron and steel from the principal steelworks and 345,000 tons of iron ore were conveyed.

Closing of Margate East Station.—The very small use made of Margate East Station does not warrant its retention, the Southern Region announces, and it will be closed on and from Monday, May 4. Margate Station, which is less than one mile away, is served by the same trains.

R. A. Lister & Co. Ltd.—An improved delivery position was reported by Sir Percy Lister, Chairman of R. A. Lister & Co. Ltd., at the company's annual general meeting on February 16. Profit for the year before taxation was £677,073, or £49,101 higher than the year before. After deduction of tax the amount of £278,016 remaining represented a net increase over the previous year of £41,827. The Chairman referred to the lead given by the company in reducing the prices of many of its products as a contribution towards reducing the "cost of living."

New B.I.C.C. Company in Australia.—British Insulated Callender's Cables Limited announces that plans for the formation of a subsidiary company in Australia have been completed, and the company has been registered in Victoria with the name "British Insulated Callender's Cables (Australia) Pty. Ltd." The authorised capital is £A.1,000,000, of which £A.400,000 has been issued, and the registered office is at 84-88 William Street, Melbourne, C.I., Victoria, with branches in other Australian States. Sir T. Malcolm Ritchie will be the first Chairman of the board which will consist of prominent Australians and the B.I.C.C. resident executives in Australia. B.I.C.C. has been directly represented in the Australian Continent for more than 50 years, with offices at Melbourne and Sydney and agents in all

State capitals and a number of other cities. The new company will engage in construction and installation work in collaboration with British Insulated Callender's Construction Co. Ltd. which already has large contracts in Australia for railway electrification, overhead lines and power cable installations.

International Railway of Central America Taken Over by Guatemala.—Guatemala has taken over the assets of the International Railway of Central America in lieu of a disputed tax claim of \$3,500,000. The railway management has denied owing claim. The company, which has its head office in New York, contends that the expropriation amounts to "confiscation." Its assets were recently estimated at \$60,000,000. Its lines connect the Caribbean with the Pacific Coast and the Mexican border with that of El Salvador. There are 794 miles open on the 3 ft. gauge. The company has had repeated labour troubles over a period of years, as well as disputes with Government.

Forthcoming Meetings

- April 13 (Mon.).—The Historical Model Railway Society at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, Kensington, W.14, at 7 p.m. Paper on "The Festiniog Railway," by Mr. J. F. Bruton.
- April 13 (Mon.).—Institute of Traffic Administration, Birmingham Centre, at the Crown Hotel, Corporation Street, at 7.15 p.m. Talk on "Air Transport."
- April 13 (Mon.).—The Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. Paper on "The Army Transportation Service," by Mr. D. R. Stenhouse.
- April 13 (Mon.).—Institute of Transport, Reading Graduate & Student Society, at the Board Room, 32, Thorn Street, at 7 p.m. Annual General Meeting followed by "Any Questions."
- April 14 (Tue.).—Institute of Transport, Manchester Graduate & Student Society, at 55, Piccadilly, at 6.15 p.m. Annual General Meeting.
- April 14 (Tue.).—Institute of Transport, Metropolitan Graduate & Student Society, at 80, Portland Place, London, W.1, at 6 p.m. Election of Officers and Committee, followed by "Air Transport Operation," by Mr. C. Gainsford (Graduate).
- April 14 (Tue.).—Institute of Transport, Midland Section, at the Imperial Hotel, Birmingham, at 6.30 p.m. Annual General Meeting followed by Film Display.
- April 14 (Tue.).—Institute of Transport, Preston-Blackpool Graduate & Student Society, at the Corporation Transport Offices, Preston, at 7.15 p.m. Annual General Meeting.
- April 14 (Tue.).—Institute of Transport, Yorkshire Section, at the Great Northern Hotel, Leeds, at 6.30 p.m. Annual General Meeting followed by Debate.
- April 15 (Wed.).—Institute of Transport, at 66, Portland Place, London, W.1, at 5.45 p.m. Brancker Memorial Lecture "The Influence of Military Aviation on Civil Air Transport," by Sir Frederick Handley Page, Past President.
- April 15 (Wed.).—The Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, Storey's Gate,

St. James's Park, London, S.W.1, at 5.30 p.m. "Running Tests of a 500 H.P. Diesel Mechanical Locomotive," by Mr. Brian Reed.

April 15, 16 and 17 (Wed., Thu. and Fri.).—British Steel Founders' First Customer/Founder Convention, at 45, Park Lane, London, W.1.

April 15 (Wed.).—Society of Chemical Industry, in the Chemical Society's Rooms, Burlington House, Piccadilly, London, W.1, at 6.30 p.m. Paper on "The Corrosion of Aluminium and Its Alloys in Supply Waters," by Mr. F. C. Porter, British Non-Ferrous Metals Research Association.

April 16 (Thu.).—Diesel Engine Users Association at the Connaught Rooms, London, at 12.30 for 1 p.m. Annual Luncheon.

April 16 (Thu.).—Institute of Transport, Portsmouth Group, at the Chamber of Commerce, at 6.30 p.m. Annual General Meeting.

April 16 (Thu.).—Institute of Transport, South Eastern Group, at the County Hotel, Maidstone, at 6.30 p.m. Transport Quiz.

April 16 (Thu.).—The Institution of Civil Engineers, at Great George Street, Westminster, S.W.1, at 5.30 p.m. Lecture, "The Reconstruction of French Railways," by Mr. Rene Miot.

April 16 (Thu.).—Institute of Transport, South Wales & Monmouthshire Section, at the South Wales Institute of Engineers, Cardiff, at 7.15 p.m. Annual General Meeting followed by debate with members of the Cardiff-Newport Graduate & Student Society.

April 17 (Fri.).—Institute of Transport, Tees-side Section, at the Cleveland Scientific & Technical Institution, Corporation Road, Middlesbrough, at 7 p.m. Annual General Meeting followed by Brains Trust.

April 17 (Fri.).—The Institution of Mechanical Engineers, at Storey's Gate, St. James's Park, London, S.W.1, at 5.30 p.m. "James Clayton Lecture on Materials Handling," by Mr. J. R. Bright.

April 17 (Fri.).—Institute of Traffic Administration, Merseyside Centre, at the Stork Hotel, Liverpool, at 7.30 p.m. Annual General Meeting.

Railway Stock Market

The dominating factor in stock markets has been a general tendency to await Tuesday's Budget, and the volume of business has tended to decrease. On the other hand, with very little selling in evidence moderate demand tended to cause a sharp uptrend of prices in the gilt-edged and industrial sections. The City realises that earlier hopes of a reduction in the standard rate of income tax, an addition to modification of E.P.L. and of tax concessions for profits earned in overseas markets, were too optimistic in view of the revenue deficit shown for the past financial year.

There is however continued hope of minor tax reductions from which industry will benefit; and if this is borne out, industrial shares should go strongly ahead. The disposition in the City is to assume that Mr. Butler may budget for increased revenue in the current year and that he may feel that now the measures taken a year ago have checked the inflation menace, the time has come when the main priority is tax concessions of some kind as an incentive to export trade.

Other factors which are influencing markets include developments in Korea and the Russian moves, which, it is hoped, may mean the beginning of an important change for the better in international affairs. The possibility of a cease-fire in Korea had resulted as we went to press in a sharp fall in tin and other metal prices and also an easing of commodity prices; for with peace in Korea there might be a slowing down in United States rearmament and a falling off in stockpiling of materials for the arms programme. It is easy to exaggerate these factors, but the tendency in commodity stock markets is to try to anticipate the future. Moreover, looking ahead, lower commodity and metal prices would of course be beneficial for industry and manufacturing companies generally.

There has been a larger business in foreign rails. Activity and sharp fluctuations in White Pass & Yukon no par value shares were again a feature. After a sharp decline, the price has shown a partial rally to 33½ at the time of going to press, while the 5 per cent convertible debentures have recovered to £118 after an earlier heavy fall. Whether a bid for the shares by U.S. interests will eventually develop is anyone's guess, but so far as can be judged, no early move of this kind seems

likely. Only some special development such as this which could justify the current level of the shares. The dividend stage is still a long way ahead, though there should be scope for big expansion in earnings if all goes well.

Canadian Pacific have strengthened to 53½, while the 4 per cent preference stock was £65½ and the 4 per cent debentures £81½. The full annual report has drawn attention to the diversified interests and activities of the company.

Latest traffic figures put Antofagasta easier at 9½ with the preference stock at 47. On the other hand, Manila Railway issues have firmed up a little after their recent reaction. The "A" debentures were 86 and the preference shares 9s. 6d. United of Havana stocks also become a little firmer with the "A" at 63½, the "B" 56, the second income stock 20½ and the consolidated stock improved to 3.

Mexican Central "A" debentures have been more active around 70. San Paulo units were 6s., and Nitrate Rails shares 20s. 6d.

In other directions, moreover, Dorada ordinary stock marked 50, Costa Rica 10½ and the 6½ per cent debentures 52, while Chilean Northern debentures changed hands up to 26½. Brazil Rail bonds have been dealt in around 6½. Nyasaland Railway debentures have changed hands at 72.

Among old Russian railway bonds, Black Sea—Kuban were dealt in at 7s. 6d. and Troitzk up to 10s.

Road transport shares have been firm with Southdown at 31s. 3d., West Riding 34s. 3d. and Lancashire Transport 46s. 6d., but B.E.T. stock eased to £470.

Engineering shares were inclined to ease on the possibility that peace in Korea would slow down rearmament. Vickers have receded to 47s. 3d. at the time of going to press and Cammell Laird 5s. shares to 13s. 6d. awaiting the dividend announcements. Guest Keen were 53s. 6d. and T. W. Ward 74s.

Among locomotive builders and engineers, Beyer Peacock eased to 36s., Central Wagon were 67s., Hurst Nelson 41s., North British Locomotive 15s. 6d., and Birmingham Carriage 32s. 9d. Vulcan Foundry were 23s., Gloucester Wagon 10s. shares 12s., Charles Roberts 5s. shares 14s. 4½d. ex the capital return, and Wagon Repairs 5s. shares 12s. 3d.